



TEST REPORT NO: RU1099/5314
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ISSUE NO: 1
FCC ID: NEO55-1248Series

**REPORT ON THE CERTIFICATION TESTING OF A
Aerial Facilities Limited
Cell Enhancer
WITH RESPECT TO
THE FCC RULES CFR 47, PART 90 Subpart I
PRIVATE LAND MOBILE REPEATER**

TEST DATE: 5th – 24th February 2004

TESTED BY: J CHARTERS

APPROVED BY: P GREEN
PRODUCT MANAGER
EMC

DATE: 3rd March 2003

Distribution:

- Copy Nos:
1. Aerial Facilities Limited
 2. TCB: TRL Compliance Services Limited
 3. TRL EMC

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FS 21805

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Notes:		
1. Component failure during test	YES	<input type="checkbox"/>
	NO	<input checked="" type="checkbox"/>
2. If Yes, details of failure:		
3. The facilities used for the testing of the product contain in this report are FCC Listed.		



CERTIFICATE OF CONFORMITY & COMPLIANCE

FCC IDENTITY: NEO55-1248Series

PURPOSE OF TEST: CERTIFICATION

TEST SPECIFICATION: FCC RULES CFR 47, Part 90 Subpart I

TEST RESULT: Compliant to Specification

EQUIPMENT UNDER TEST: Cell Enhancer

EQUIPMENT TYPE: Private Land Mobile Repeater

MAXIMUM GAIN: +92.3 dBm (up link)

MAXIMUM INPUT: -55.4 dBm (down link)

MAXIMUM OUTPUT: +30.0 dBm

ANTENNA TYPE: Not applicable

CHANNEL SPACING: Not Applicable

NUMBER OF CHANNELS:

Channel No.	Uplink	Downlink
	380 – 395 MHz	390 – 395 MHz

FREQUENCY GENERATION: N/A

MODULATION TYPE: F3E

POWER SOURCE(s): +24Vdc

TEST DATE(s): 5th – 24th February 2004

ORDER No(s): 23174

APPLICANT: Aerial Facilities Limited

ADDRESS: Aerial House
Latimer Park, Latimer
Chesham
Buckinghamshire
HP5 1TU
United Kingdom

TESTED BY: _____ J CHARTERS

APPROVED BY: _____ P GREEN
PRODUCT
MANAGER EMC

APPLICANT'S SUMMARY

EQUIPMENT UNDER TEST (EUT):	Cell Enhancer
EQUIPMENT TYPE:	60-055903
PURPOSE OF TEST:	CERTIFICATION
TEST SPECIFICATION(s):	FCC RULES CFR 47, Part 90 Subpart I
TEST RESULT:	COMPLIANT Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
APPLICANT'S CATEGORY:	MANUFACTURER <input checked="" type="checkbox"/> IMPORTER <input type="checkbox"/> DISTRIBUTOR <input type="checkbox"/> TEST HOUSE <input type="checkbox"/> AGENT <input type="checkbox"/>
APPLICANT'S ORDER No(s):	23174
APPLICANT'S CONTACT PERSON(s):	Mr Peter Bradfield
E-mail address:	Peterb@aerial.co.uk
APPLICANT:	Aerial Facilities Limited
ADDRESS:	Aerial House Latimer Park, Latimer Chesham Buckinghamshire HP5 1TU United Kingdom
TEL:	+44 (0)1494777000
FAX:	+44 (0)1494777002
MANUFACTURER:	Aerial Facilities Limited
EUT(s) COUNTRY OF ORIGIN:	United Kingdom
TEST LABORATORY:	TRL EMC
UKAS ACCREDITATION No:	0728
TEST DATE(s)	5 th – 24 th February
TEST REPORT No:	RU1099/5314

EQUIPMENT TEST / EXAMINATIONS REQUIRED

1.	TEST/EXAMINATION	RULE PART	APPLICABILITY	RESULT
	RF Power Output	90.205	Yes	Complies
	Audio Frequency Response	TIA EIA-603.3.2.6	N/A	N/A
	Audio Low-Pass Filter Response	TIA EIA-603.3.2.6	N/A	N/A
	Modulation Limiting	TIA EIA-603.3.2.6	N/A	N/A
	Occupied Bandwidth	90.210	Yes	Complies
	Spurious Emissions at Antenna Terminals	90.210	Yes	Complies
	Field Strength of Spurious Emissions	90.210	Yes	Complies
	Frequency Stability	90.213	N/A(note 1)	N/A
	Transient behaviour	90.214	N/A(note 2)	N/A

Notes:

1 The EUT does not contain modulation circuitry, therefore the test was not performed.

2 The EUT is not a keyed carrier system, therefore the test was not performed.

2. Product Use: Private Land Mobile Repeater
 3. Emission Designator: F3E
 4. Temperatures: Ambient (Tnom) 21°C
 5. Supply Voltages: Vnom +24 Vdc
- Note: Vnom voltages are as stated above unless otherwise shown on the test report page
6. Equipment Category:

Single channel	<input type="checkbox"/>
Two channel	<input type="checkbox"/>
Multi-channel	<input checked="" type="checkbox"/>
 7. Channel spacing:

Narrowband	<input type="checkbox"/>
Wideband	<input checked="" type="checkbox"/>
 8. Test Location

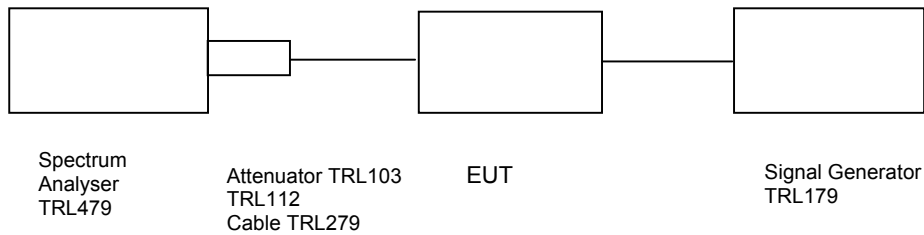
TRL Compliance Services	
Up Holland	<input checked="" type="checkbox"/>
Long Green	<input type="checkbox"/>
 9. Modifications made during test program No modifications were performed.

COMPLIANCE TESTS

AMPLIFIER GAIN – CONDUCTED – PART 2.1046 – UPLINK

Ambient temperature = 21°C
 Relative humidity = 53%
 Supply voltage = +24 Vdc
 Channel number = See test results

Radio Laboratory



Frequency MHz	Signal Generator input level dBm	Cable & Attenuator loss dB	Level at Spectrum Analyser dBm	Gain dB	Gain after 20dB input level increase dBm
380.1	-61.9	29.85	0.36	92.11	92.11
382.5	-62.6	29.85	-0.08	92.39	92.39
384.9	-61.4	29.85	-0.052	91.198	91.198

Notes:

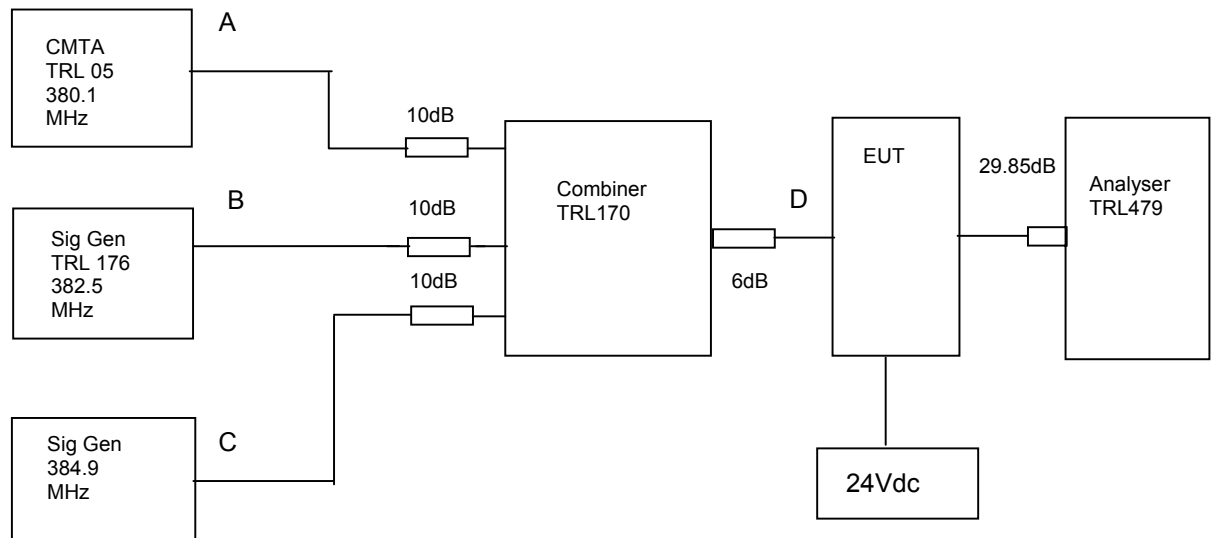
- The level of the signal generator takes into consideration the loss from the cable.
- The signal generator output was increased by 20dBs and the level of the output signal remeasured

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	X
ATTENUATOR	BIRD	8308-200	N/A	103	X
ATTENUATOR	BIRD	8308-100	N/A	112	X
CABLE	ROSENBERGER	MICRO COAX	N/A	279	X
SIGNAL GENERATOR	MARCON	2042	119388/080	179	X

AMPLIFIER INTERMODULATION SPURIOUS EMISSIONS – CONDUCTED – PART 2.1053– UPLINK

Ambient temperature = 21°C
Relative humidity = 53%
Supply voltage = +24 Vdc

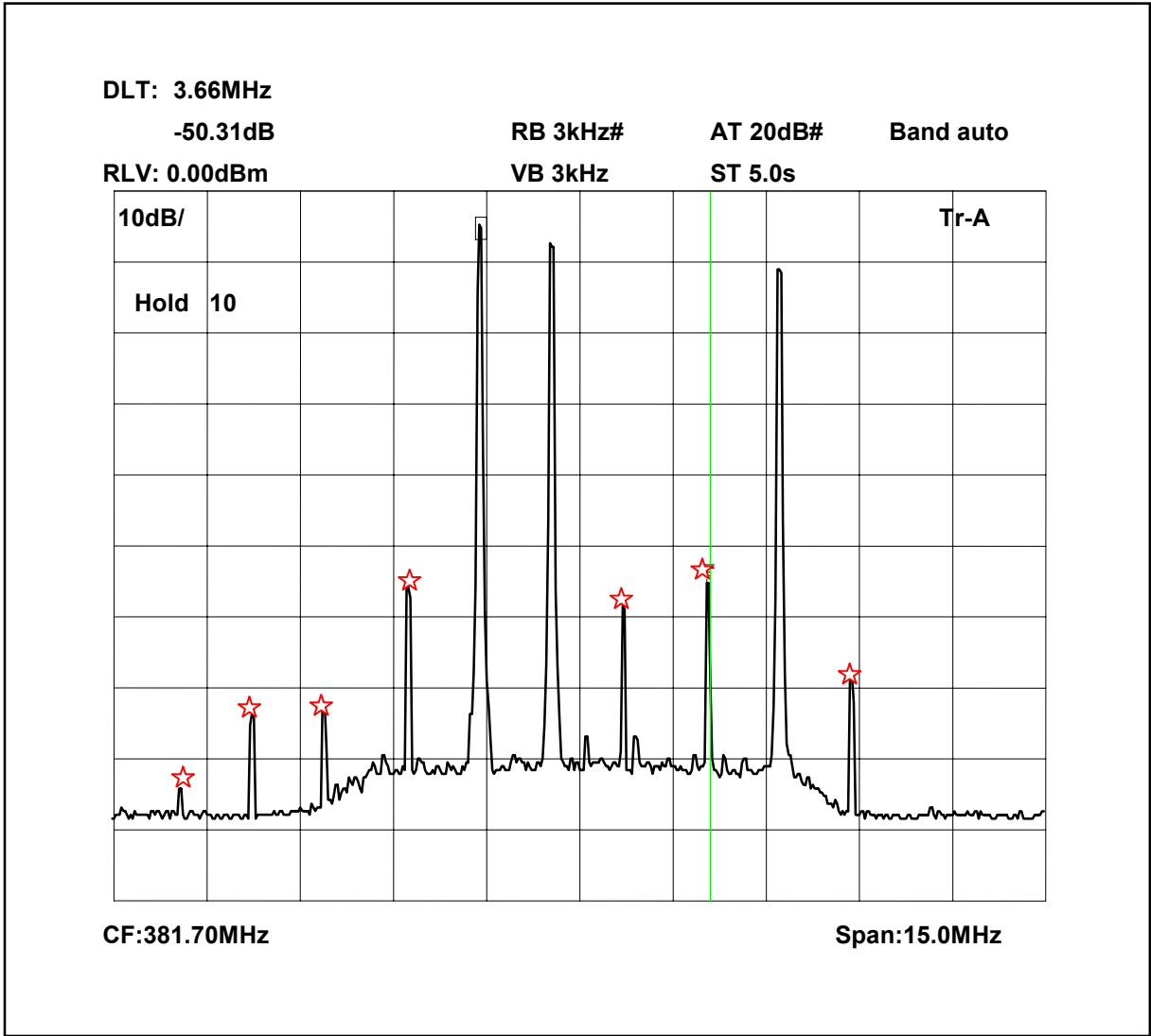
Radio Laboratory



The Intermodulation and spurious products were measured with the amplifier operating at maximum gain. A three tone test was conducted using the equipment as above. The input power level was adjusted so the level at point D was the maximum input of –61.4dBm. The cable and attenuator loss between the EUT and the spectrum analyser was 29.85dB.

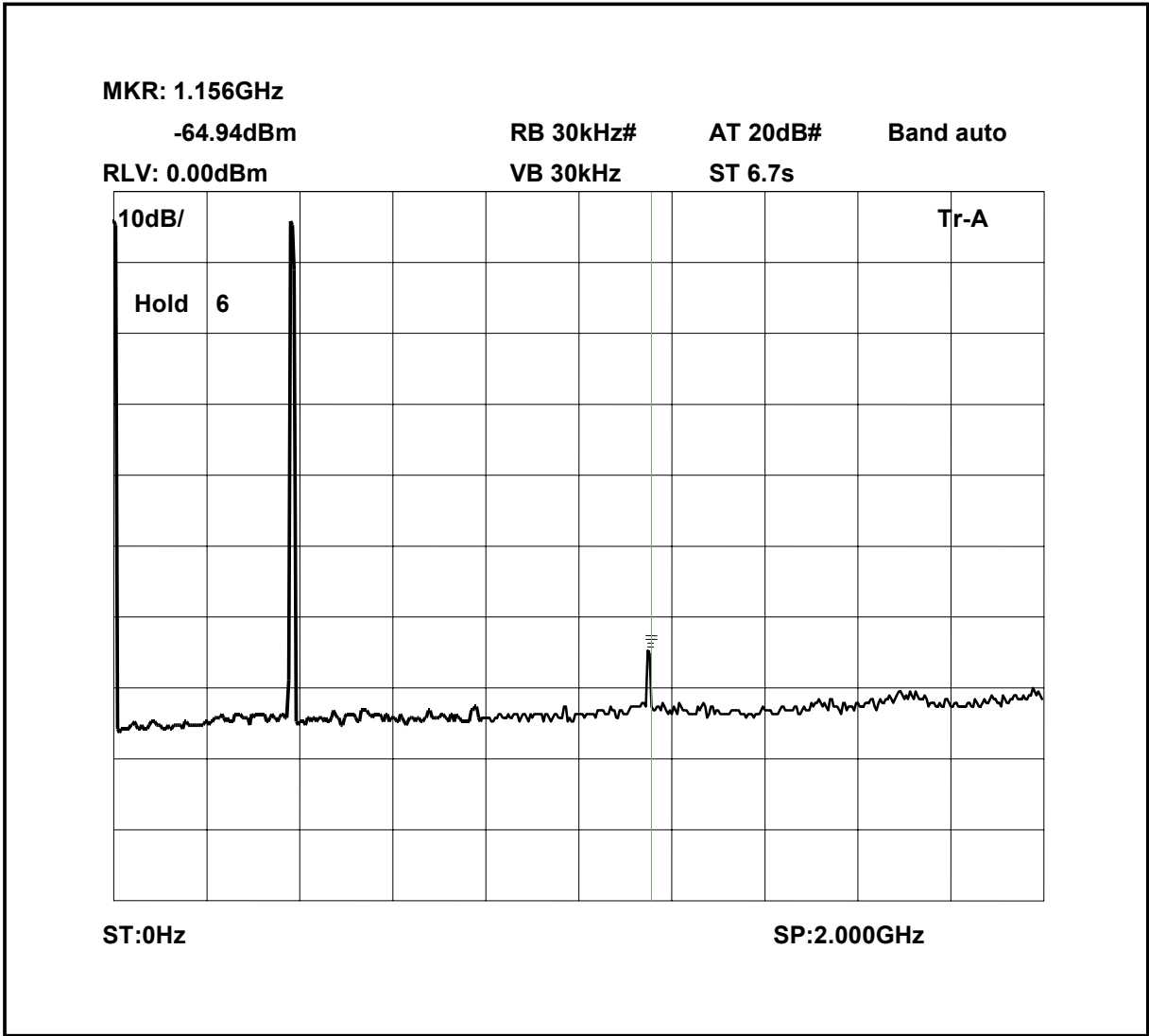
Sweep data is shown on the next page:

Intermodulation Inband



The above plot shows that all products (designated by★) are at least 50dB below the fundamentals level detailed on previous page .

Intermodulation Wideband



The above plot shows that there are no products outside the transmit band.

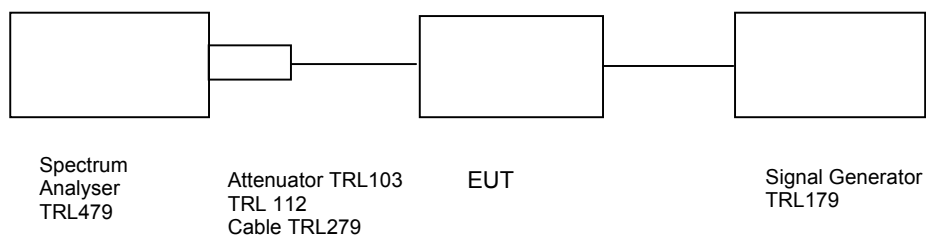
Test equipment used for intermodulation test

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	X
SIGNAL GENERATOR	ROHDE & SCHWARZ	SMR 20	834671/003	478	X
CMTA	ROHDE & SCHWARZ	CMTA52	894715/033	05	X
SIGNAL GENERATOR	MARCON	2042	119388/080	179	X
COMBINER	ELCOM	RC-4-50	N/A	170	X

TRANSMITTER TESTS

AMPLIFIER MODULATED CHANNEL TEST – CONDUCTED – Part 2.1049– UPLINK

Ambient temperature	=	24°C	Radio Laboratory
Relative humidity	=	48%	
Supply voltage	=	+24 Vdc	
Channel number	=	See test results	



This test was performed to show that the amplifier does not alter the input signal in any way. The input signal was set to the maximum input level (-61.4 dBm) and modulated with a 2500Hz tone. The plots show the signal measured at the signal generator and the signal measured at the output of the EUT.

Note: The cables and attenuators had the following losses.

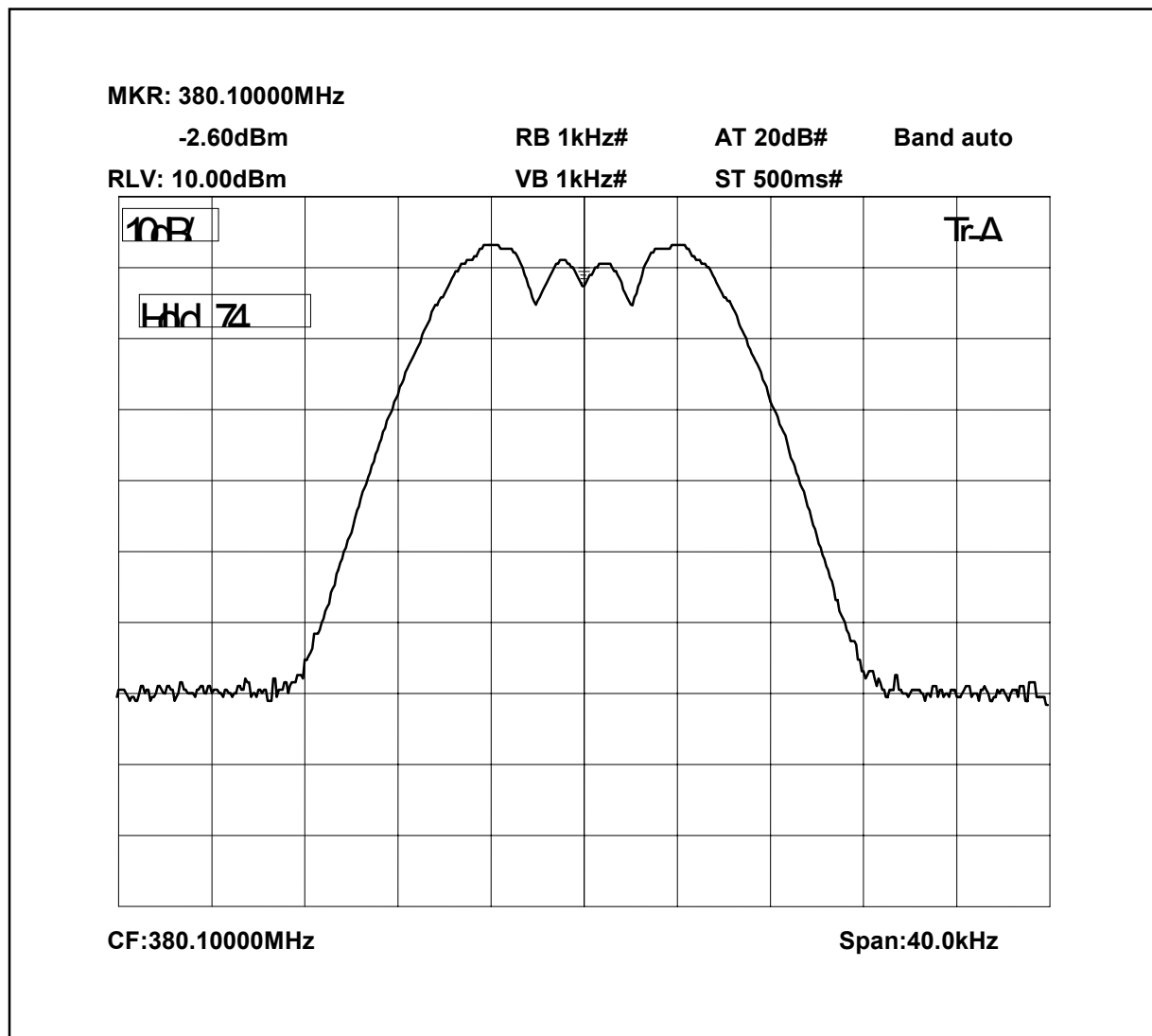
1. Cable TRL279 and attenuator TRL112 TRL103 29.85dB
2. Cable between signal generator and EUT 0.4dB

MR: 380.10008MHz
-68.87dBm
RB 1kHz#
AT 10dB#
Band auto
RLV:-30.00dBm
VB 1kHz#
ST 500ms#

10dB/
Hold 37
Tr-A

CF:380.10000MHz
Span:40.0kHz

380.1MHz Signal Generator and EUT deviation set to 5kHz



The above plots depicting the output waveshape show no measurable distortion visible. When compared to the input signal.

MR: 382.50008MHz
-68.78dBm
RB 1kHz#
AT 10dB#
Band auto
RLV:-30.00dBm
VB 1kHz#
ST 500ms#

10dB/

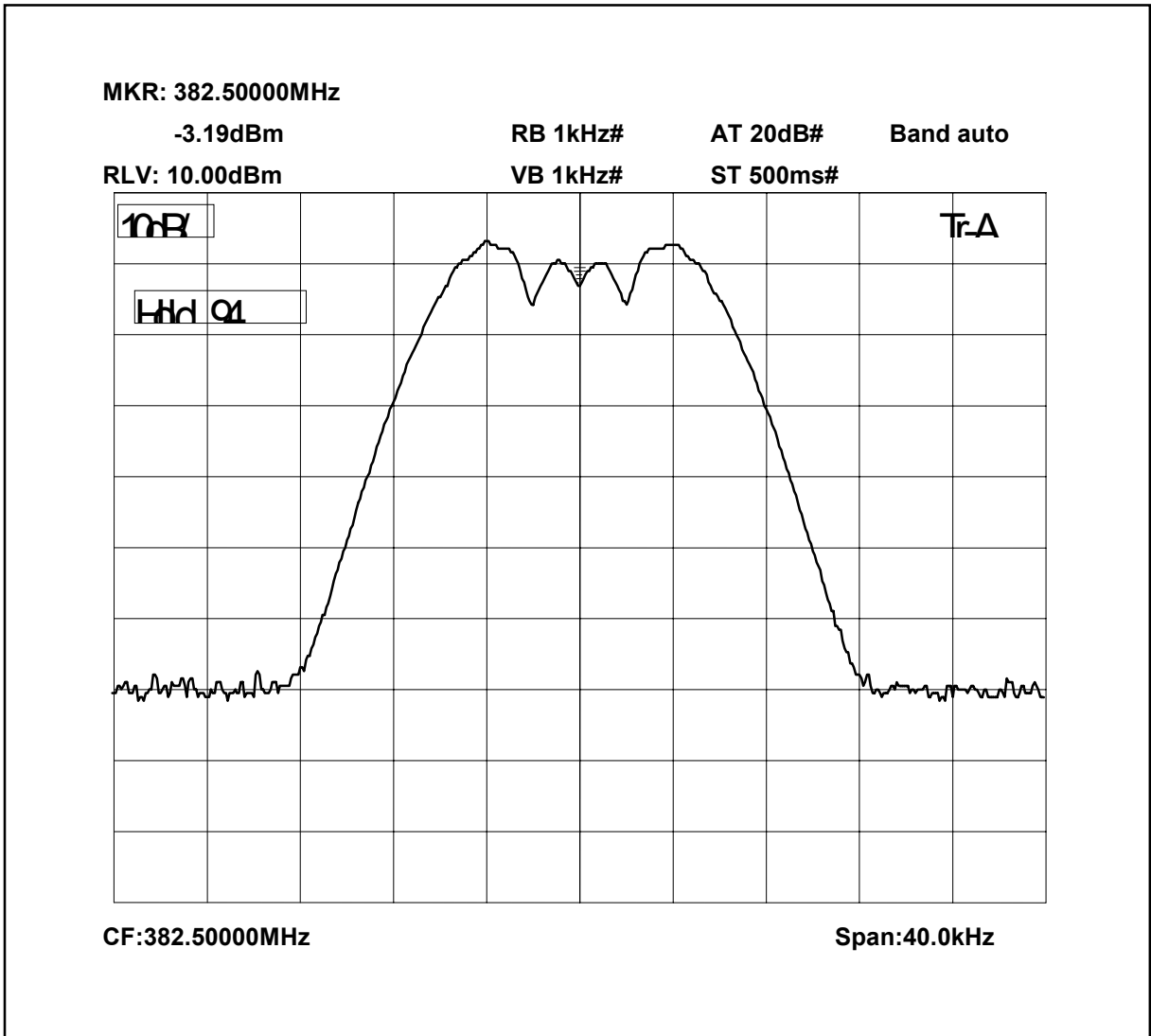
Hold 88

Tr-A

CF:382.50000MHz

Span:40.0kHz

382.5MHz Signal Generator and amplifier deviation set to 5kHz



The above plots depicting the output waveshape show no measurable distortion visible. When compared to the input signal.

MKR: 384.90008MHz
-67.87dBm
RLV:-30.00dBm

RB 1kHz#
VB 1kHz#

AT 10dB#
ST 500ms#

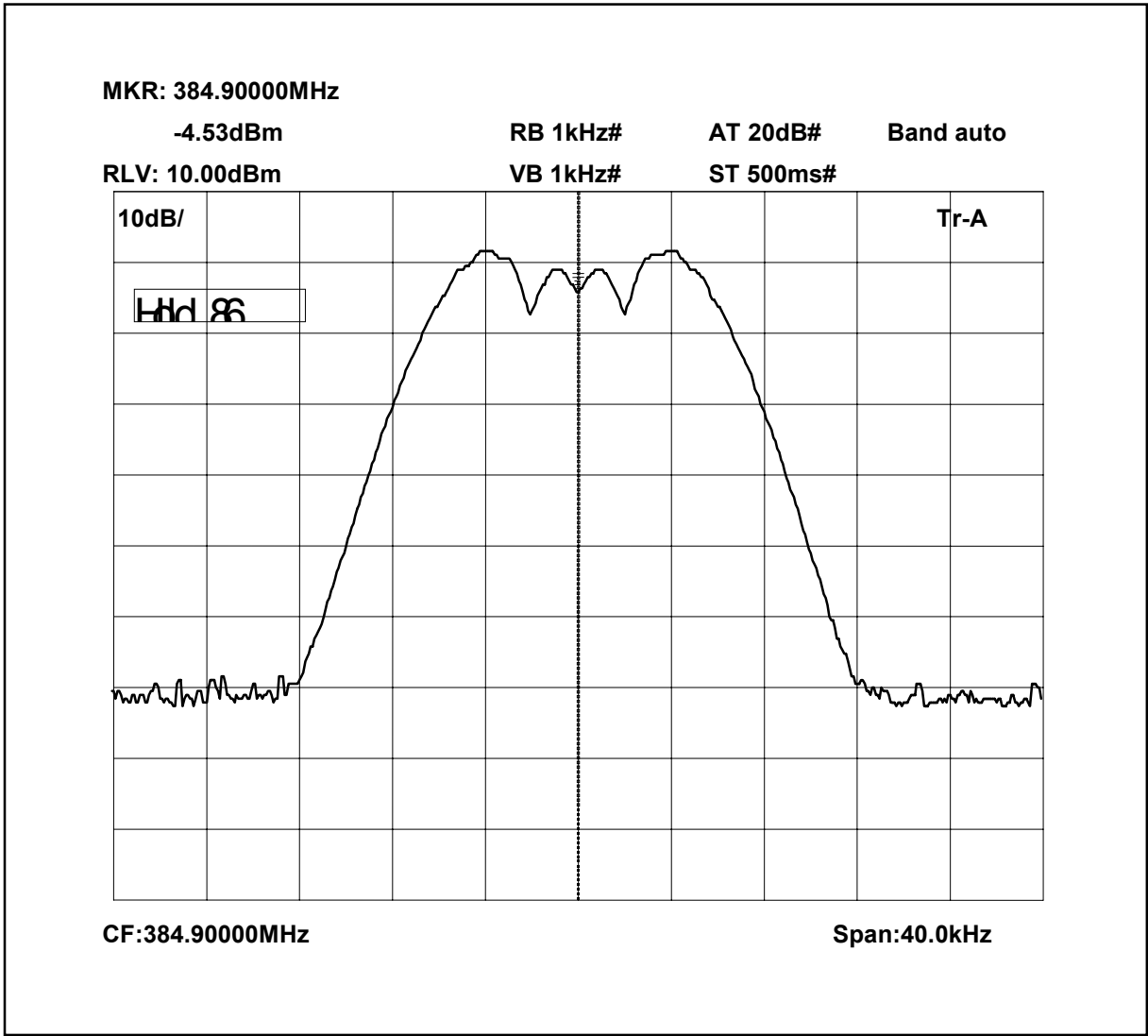
Band auto

10dB/
Hold 43

Tr-A

CF:384.90000MHz
Span:40.0kHz

384.9MHz Signal Generator deviation set to 5kHz



The above plots depicting the output waveshape show no measurable distortion visible. When compared to the input signal.

The test equipment used for the Transmitter Modulated Channel tests is shown overleaf:

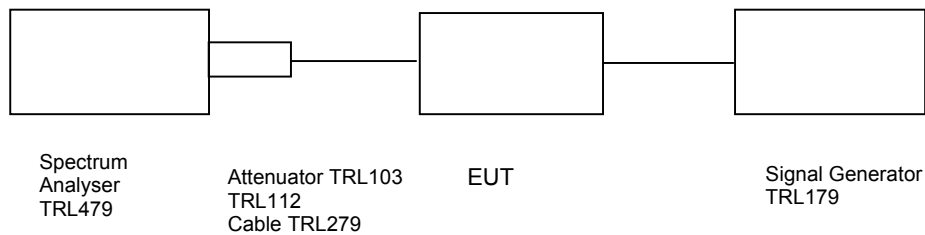
TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	X
ATTENUATOR	BIRD	8308-200	N/A	103	X
ATTENUATOR	BIRD	8308-100	N/A	112	X
CABLE	ROSENBERGER	MICRO COAX	N/A	279	X
SIGNAL GENERATOR	MARCON	2042	119388/080	179	X

TRANSMITTER TESTS

AMPLIFIER SPURIOUS EMISSIONS – CONDUCTED – Part 2.1051 dBm– UPLINK

Ambient temperature = 19°C
 Relative humidity = 45%
 Supply voltage = +24 Vdc

Radio Laboratory
 Test Signal = F3E



The test was set up as per the diagram. The level at the input was adjusted to compensate for the loss of the interconnecting cable. The unit was tested operating at maximum power and on three test frequencies.

The Spurious limit was calculated as follows:

On any frequency removed from the assigned frequency by more than 250% of the authorised bandwidth

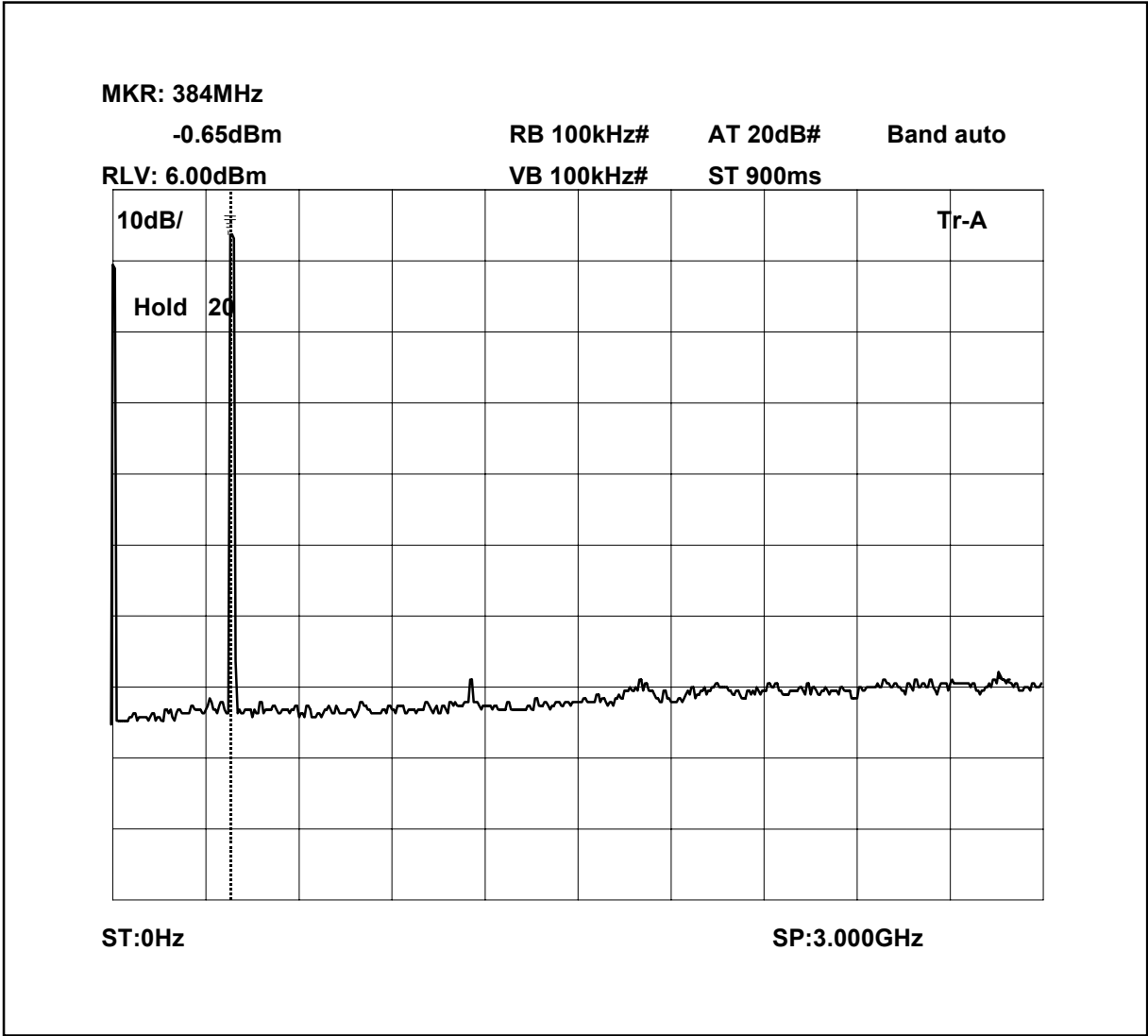
At least $43 + 10 \log \text{PdB}$

$$(10 \log P_{\text{watts}}) - (43 + 10 \log (P_{\text{watts}} * 1000)) = \text{LIMIT} = -13 \text{ dBm}$$

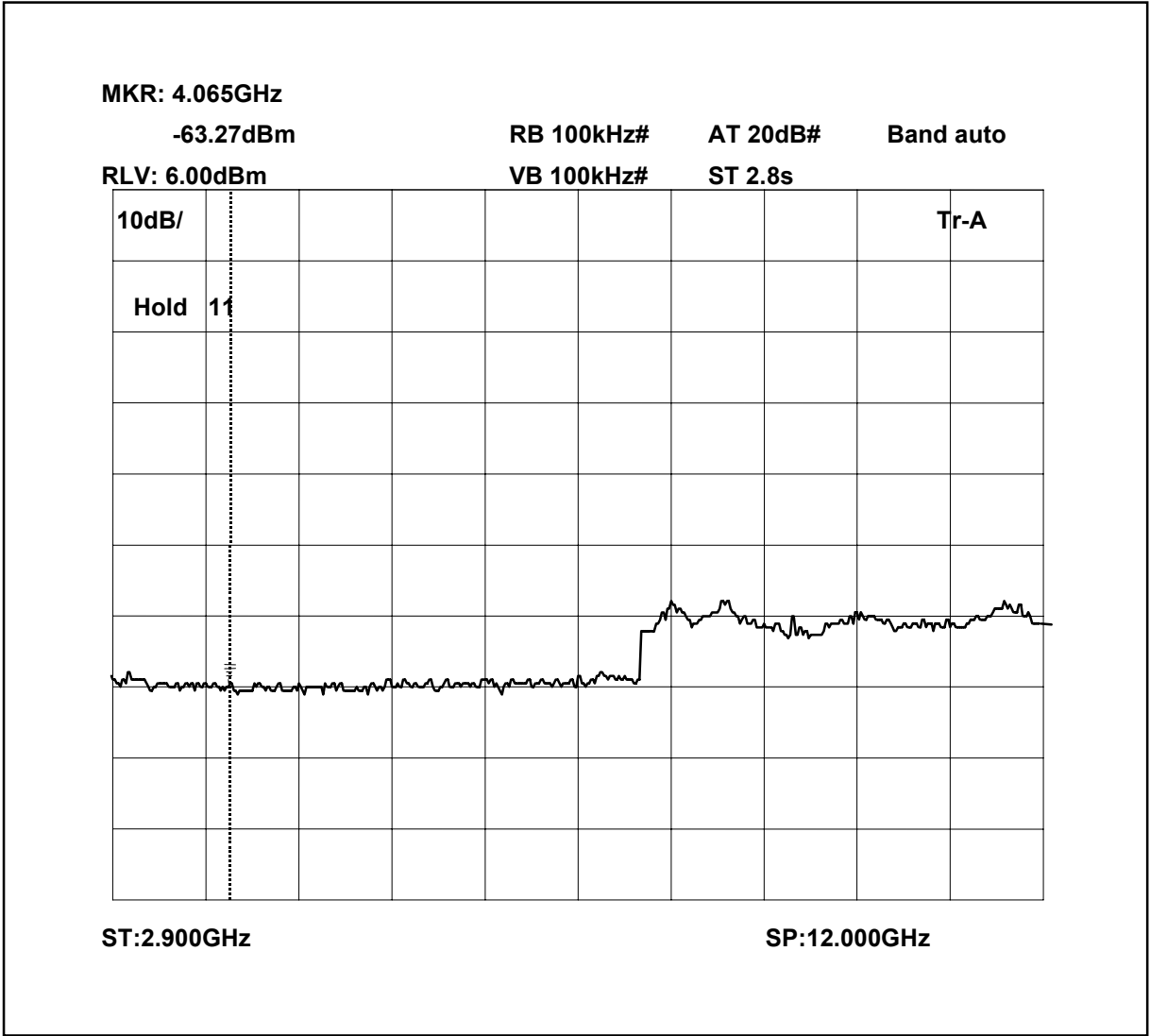
The test equipment used for the Transmitter Conducted Emissions:

TYPE OF EQUIPMENT	MAKER/SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	X
ATTENUATOR	BIRD	8308-200	N/A	103	X
ATTENUATOR	BIRD	8308-100	N/A	112	X
CABLE	ROSENBERGER	MICRO COAX	N/A	279	X
SIGNAL GENERATOR	MARCON	2042	119388/080	179	X

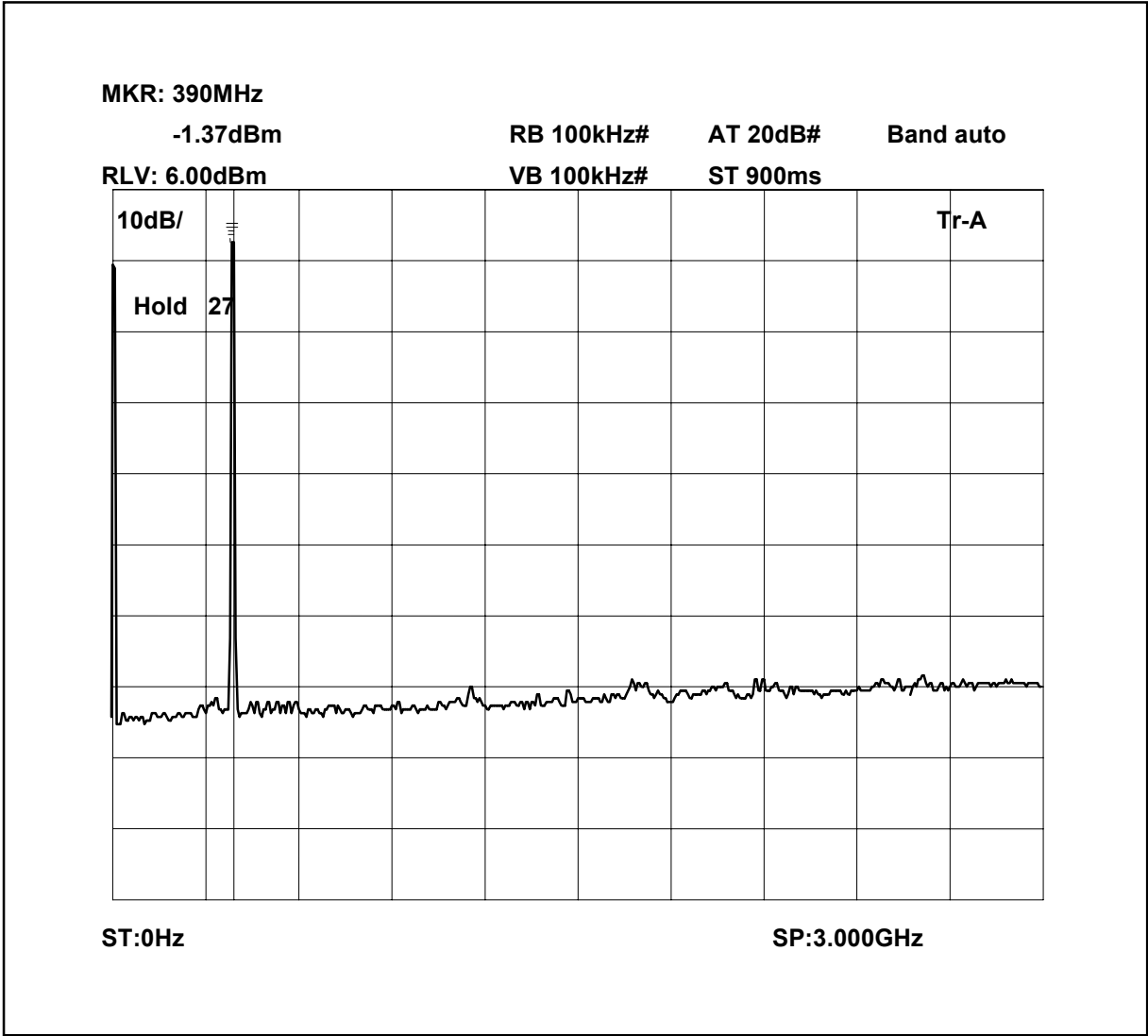
Conducted emissions 380.1MHz 0 – 3GHz



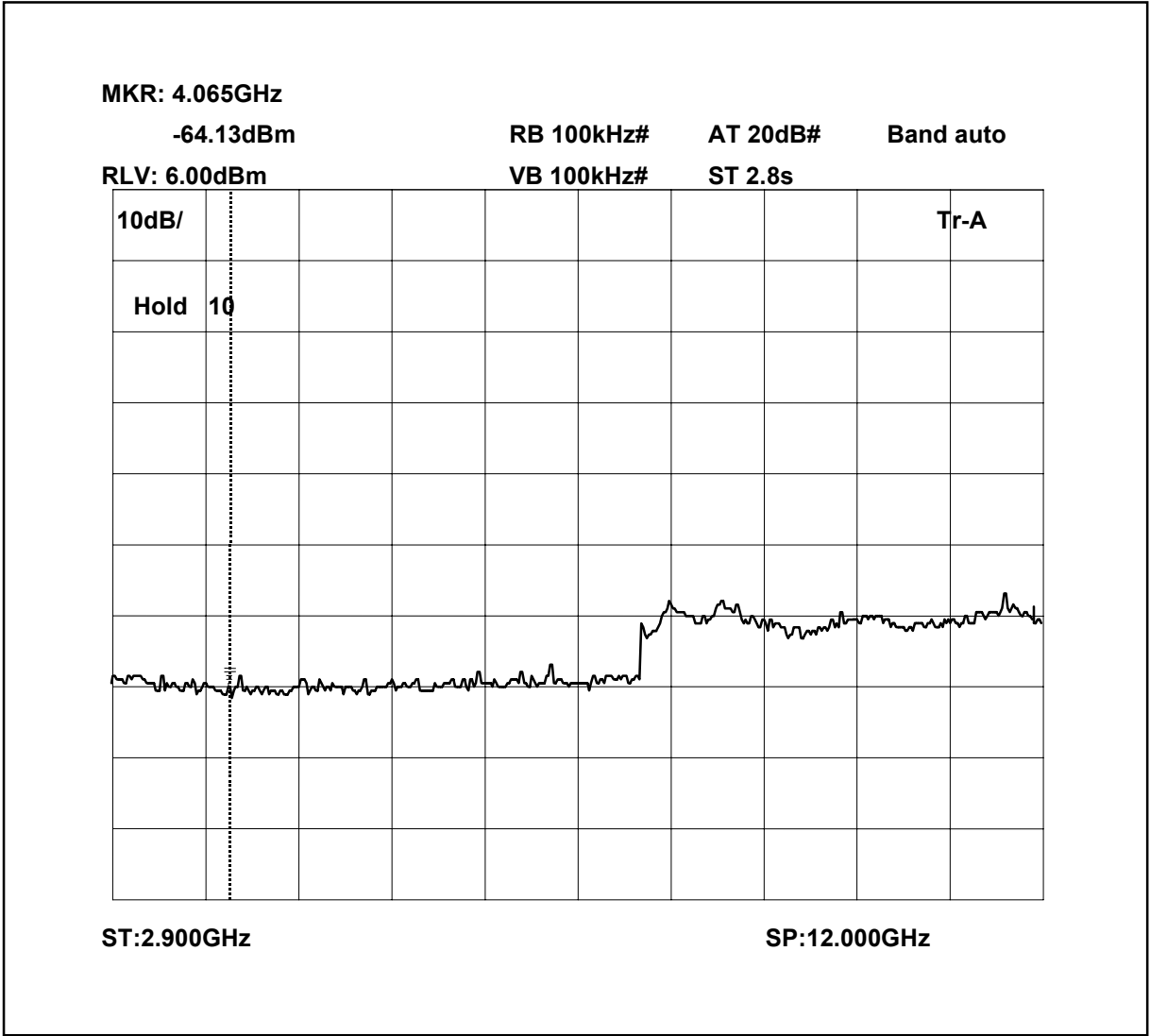
Conducted emissions 380.1MHz 2.9 - 12GHz



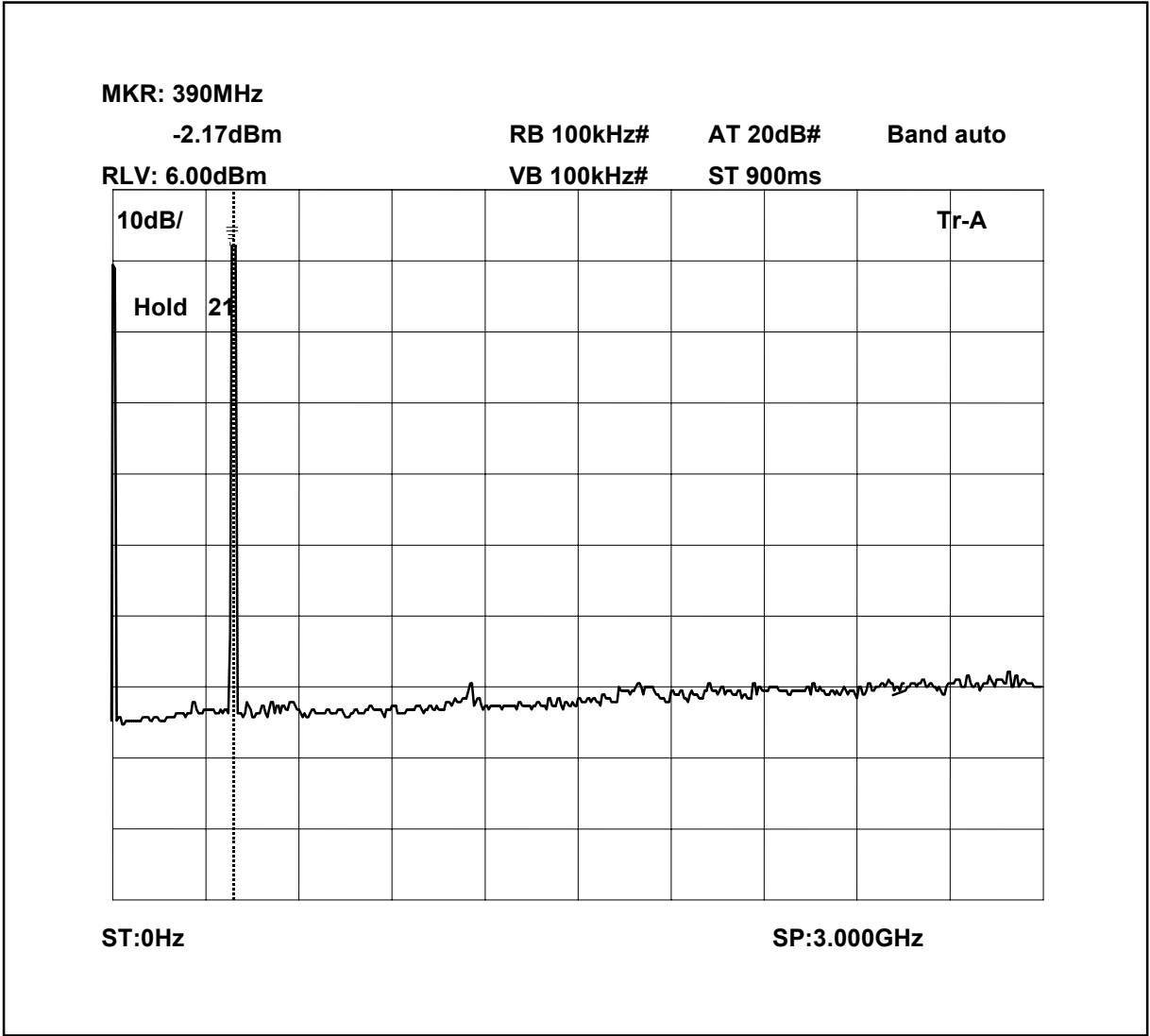
Conducted emissions 382.5 MHz 0 - 3GHz



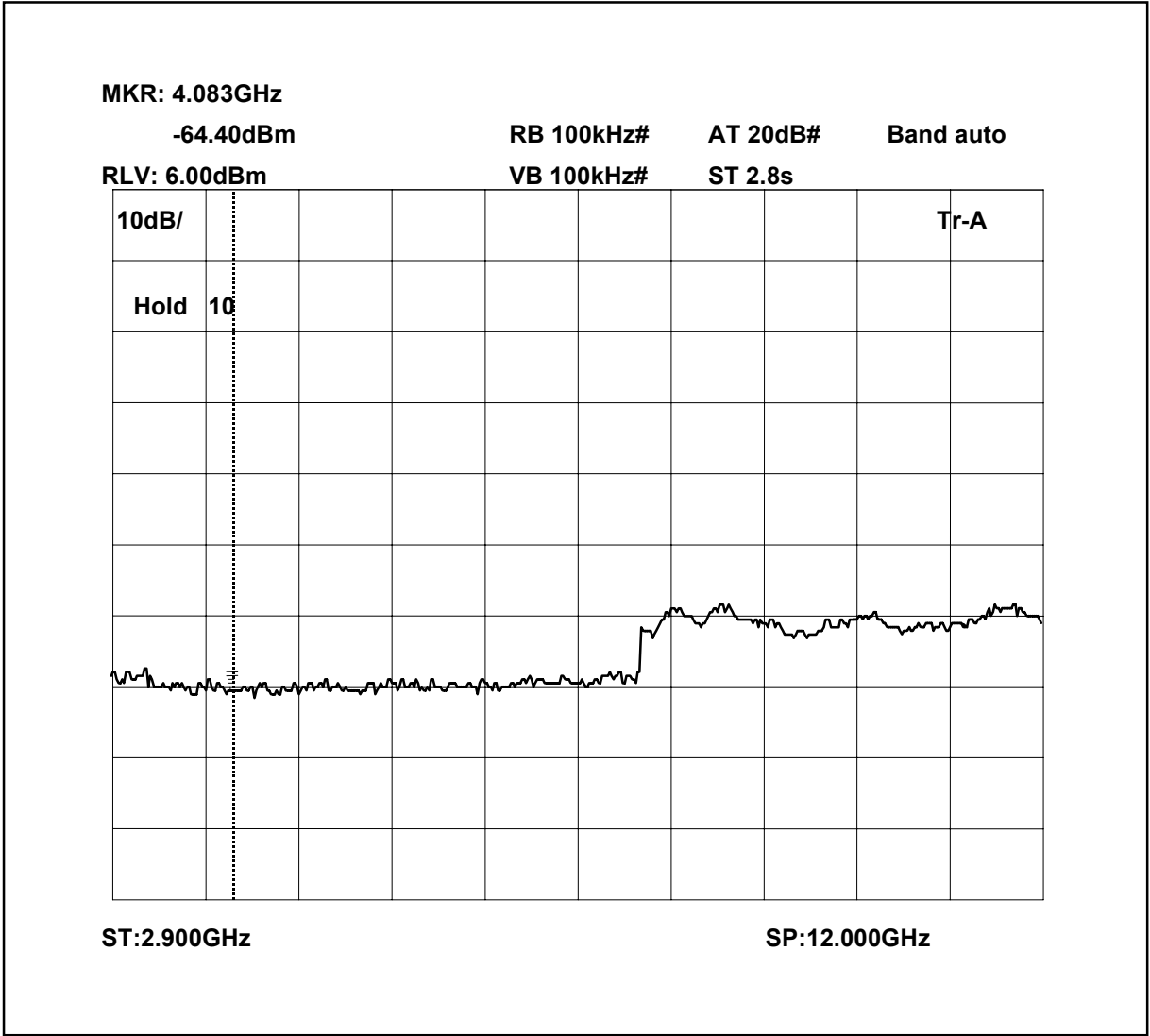
Conducted emissions 382.5MHz 2.9 - 12GHz



Conducted emissions 384.9MHz 0 - 3GHz



Conducted emissions 384.9MHz 2.9 - 12GHz

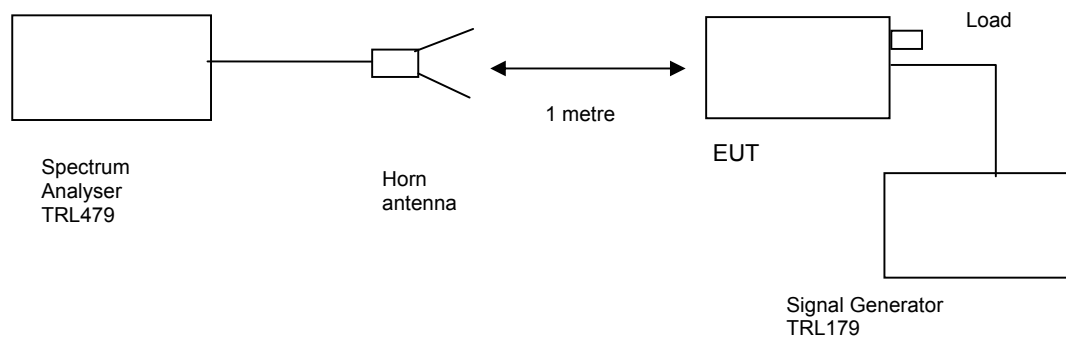


TRANSMITTER TESTS

AMPLIFIER SPURIOUS EMISSIONS – RADIATED – Part 2.1053– UPLINK

Ambient temperature = 19°C
Relative humidity = 45%
Conditions = OATS
Supply voltage = +24 Vdc
Supply Frequency = N/A

Test Signal = F3E



The test was set up as per the diagram. The level at the input was adjusted to compensate for the loss of the interconnecting cable. The unit was tested operating maximum power on three test frequencies with a 50 ohm load on the output. The unit was also tested with the signal generator replaced by another 50ohm load.

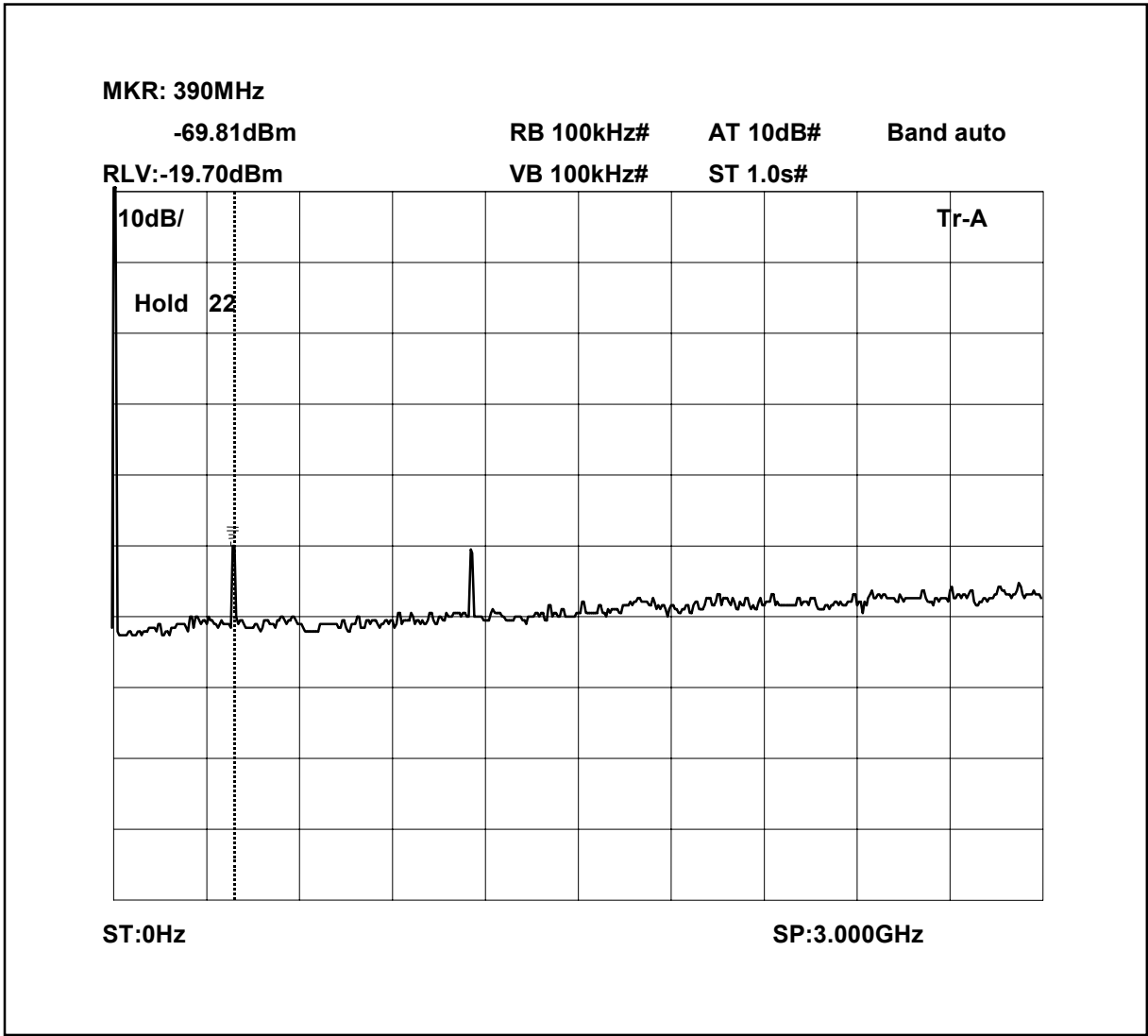
The Spurious limit was calculated as follows:

On any frequency removed from the assigned frequency by more that 250% of the authorised bandwidth

At least $43 + 10 \log \text{PdB}$

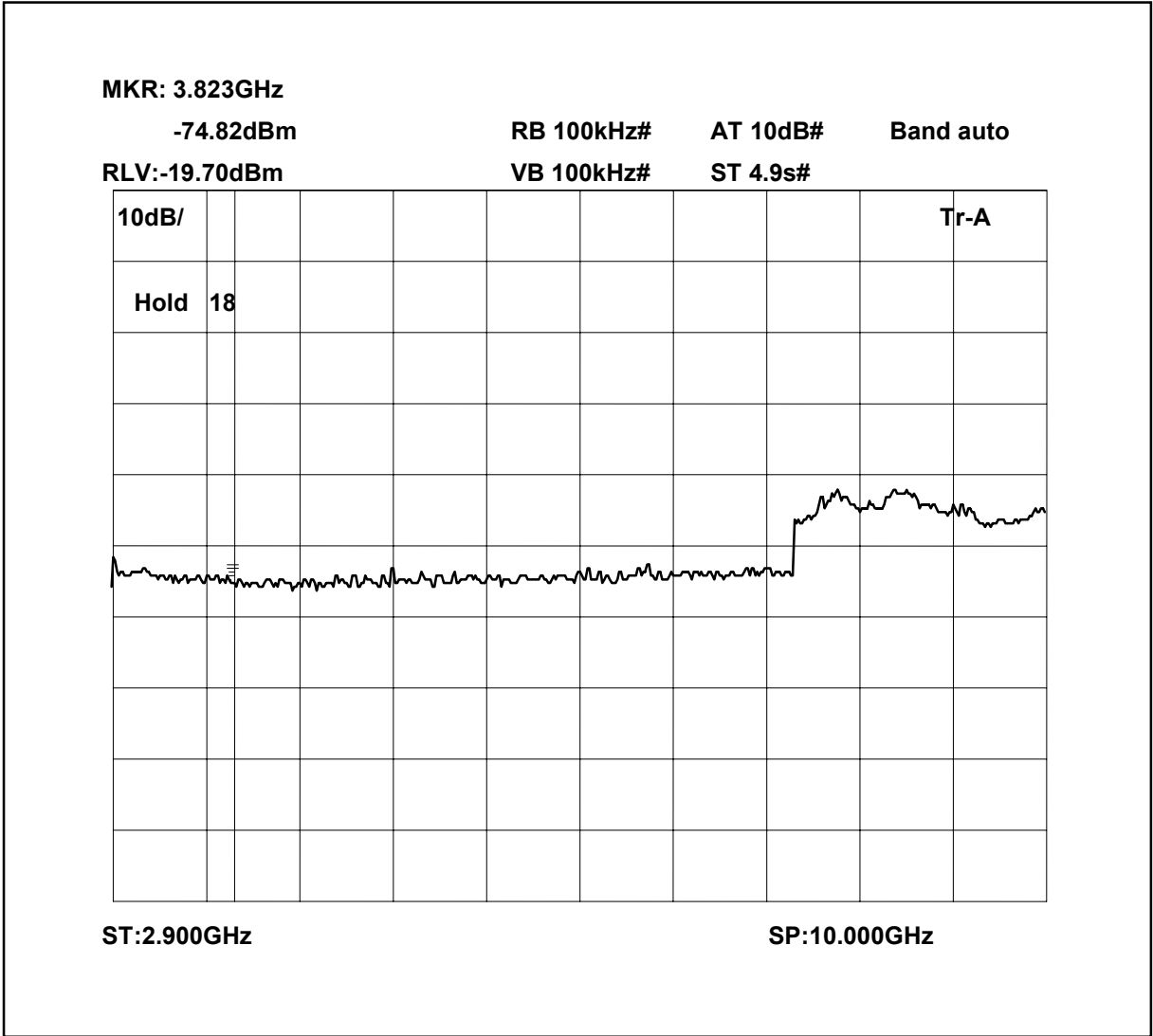
$$(10\log P_{\text{watts}}) - (43 + 10\log (P_{\text{watts}} * 1000)) = \text{LIMIT} = -13 \text{ dBm}$$

Radiated emissions 380.1 MHz 0-3GHz



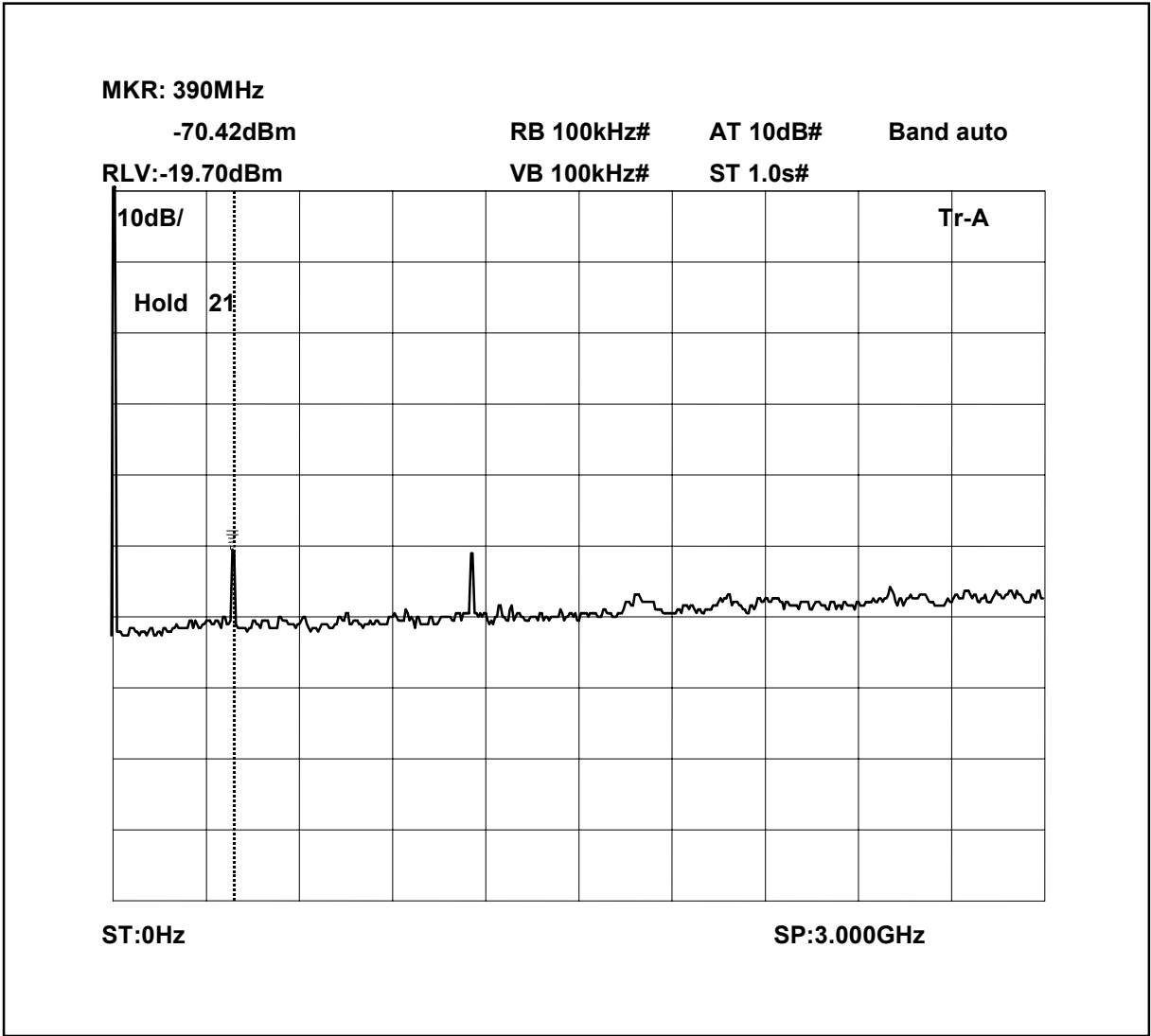
The above test results show that there were no emissions within 20dBs of the -13dBm limit.

Radiated emissions 380.1MHz 2.9-10GHz



The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 382.5MHz 0-3GHz



The above test results show that there were no emissions within 20dBs of the -13dBm limit.

MKR: 3.823GHz
-73.39dBm
RB 100kHz#
AT 10dB#
Band auto
RLV:-19.70dBm
VB 100kHz#
ST 5.0s#

10dB/

Hold 18

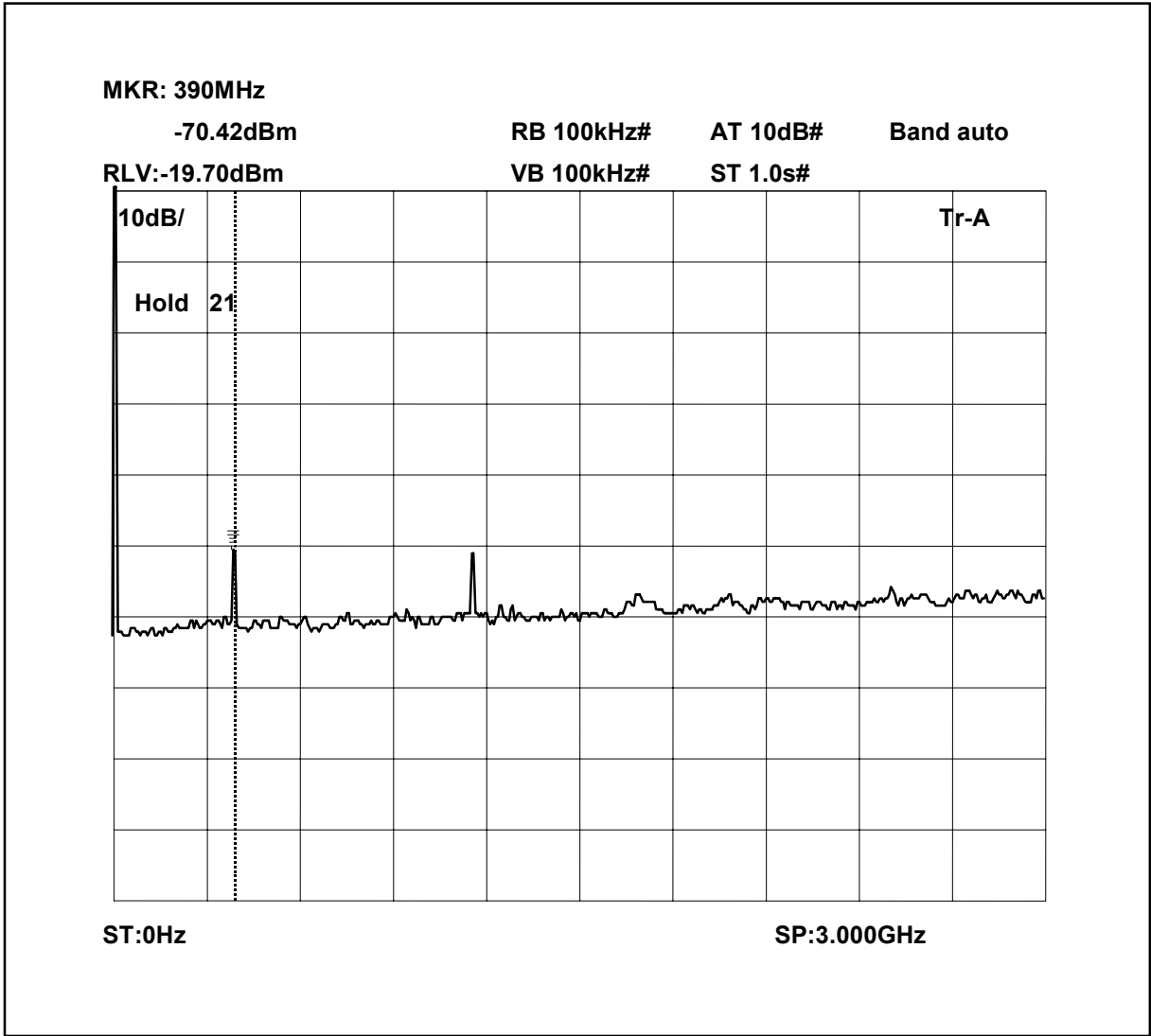
Tr-A

ST:2.900GHz

SP:10.000GHz

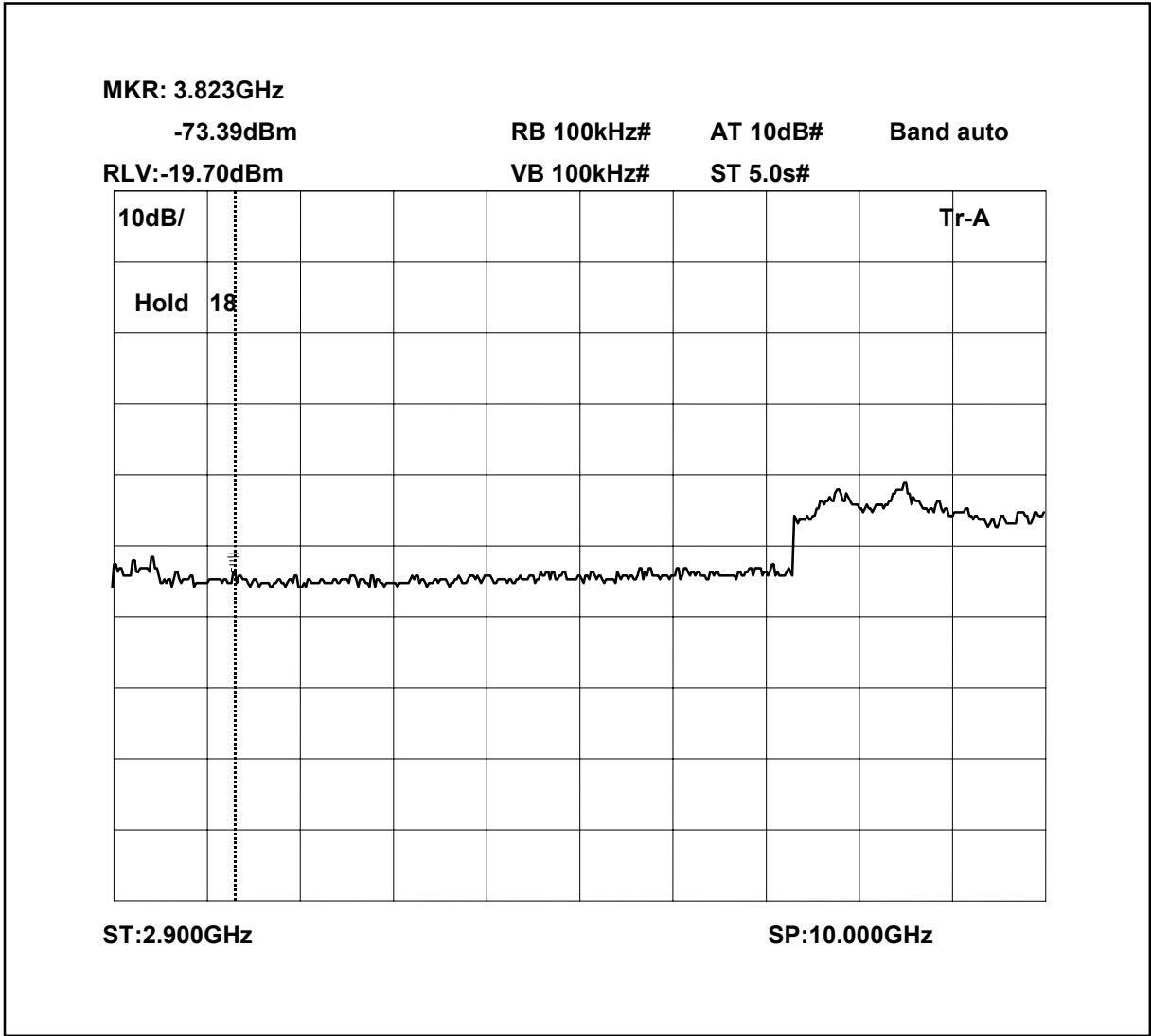
RF335 iss02

Radiated emissions 384.9MHz 0-3GHz



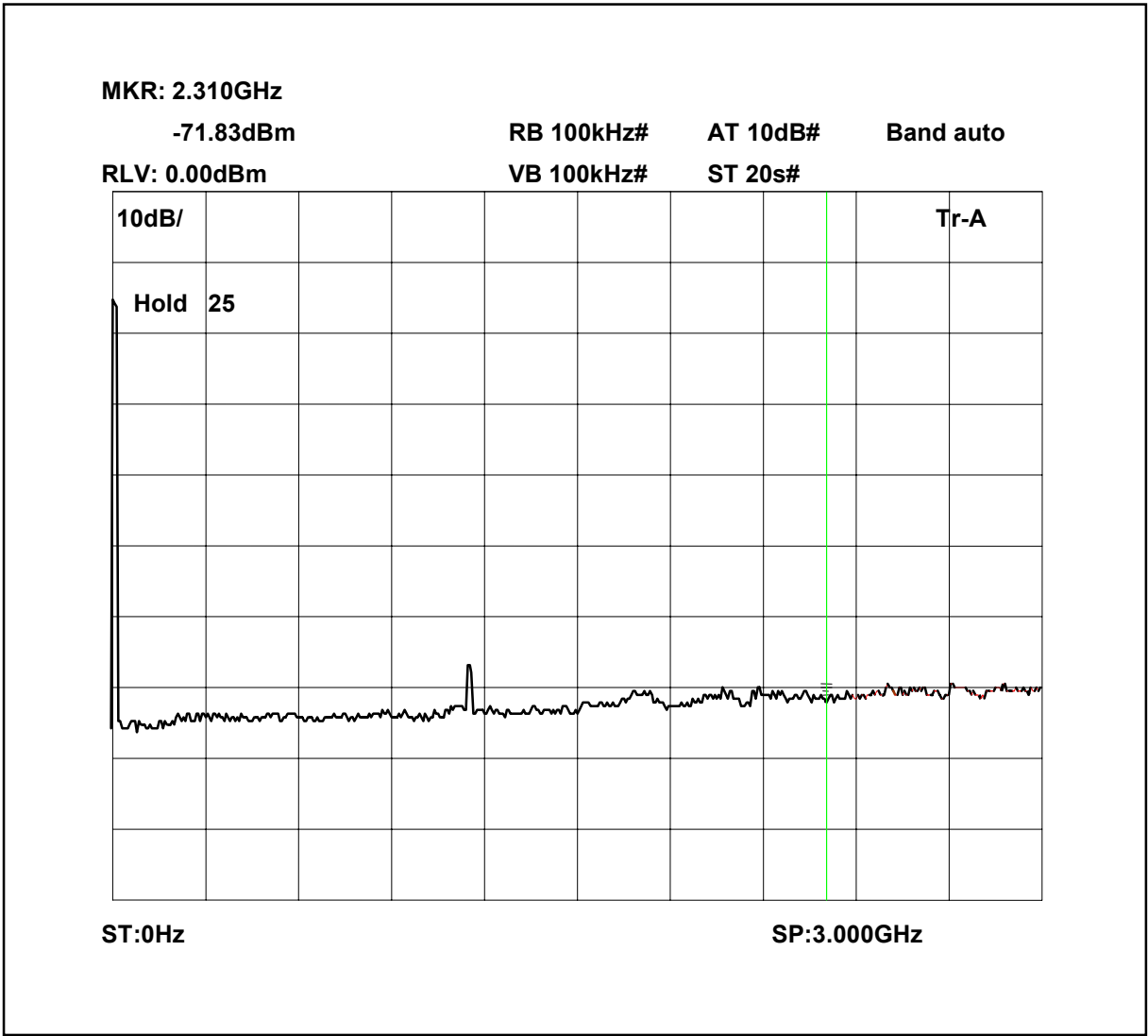
The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 384.9MHz 2.9-10GHz



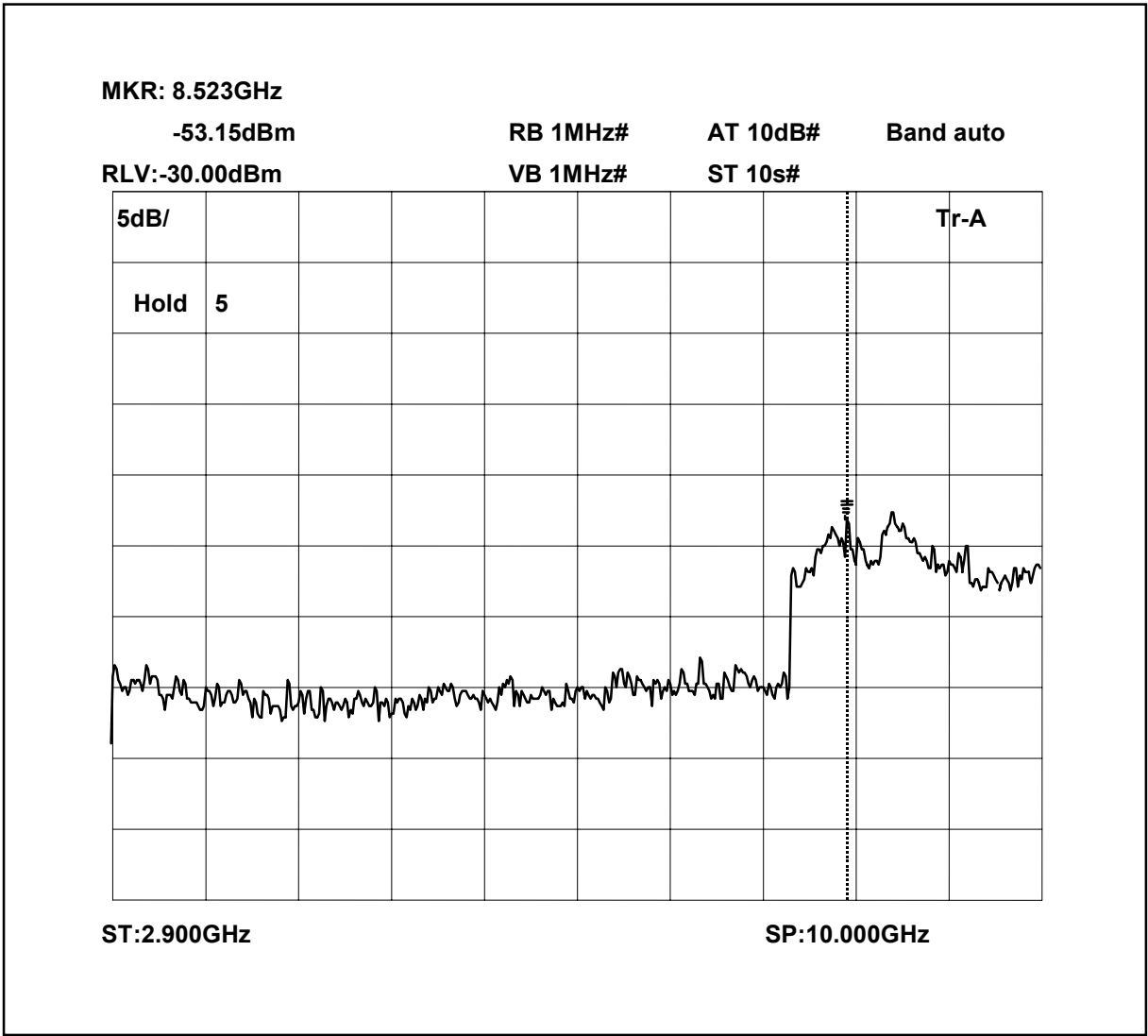
The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions no input signal 0-3GHz



The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions no input signal 2.9-10GHz



The above test results show that there were no emissions within 20dBs of the –13dBm limit.

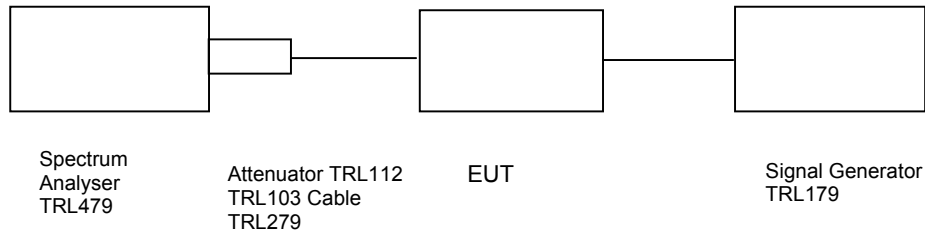
The test equipment used for the Transmitter Spurious Emissions:

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	X
HORN	EMCO	3115	9010-3581	139	X
ATTENUATOR	BIRD	8304-300-N	N/A	103	X
ATTENUATOR	BIRD	8304-300-N	N/A	112	X
CABLE	ROSENBERGER	MICRO COAX	N/A	279	X
50Ω Load	PHILCO	160B-300	1643	UH139	X
SIGNAL GENERATOR	MARCON	2042	119388/080	179	X

AMPLIFIER GAIN – CONDUCTED – PART 2.1046 – DOWNLINK

Ambient temperature = 21°C
 Relative humidity = 37%
 Supply voltage = +24 Vdc
 Channel number = See test results

Radio Laboratory



Frequency MHz	Signal Generator input level dBm	Cable & Attenuator loss dB	Level at Spectrum Analyser dBm	Gain dB	Gain after 20dB input level increase dBm
390.1	-55.0	-29.85	-0.64	+84.6	+84.6
392.5	-57.5	-29.85	-0.79	+84.56	+84.56
394.9	-57.4	-29.85	-0.79	+86.84	+86.84

Notes:

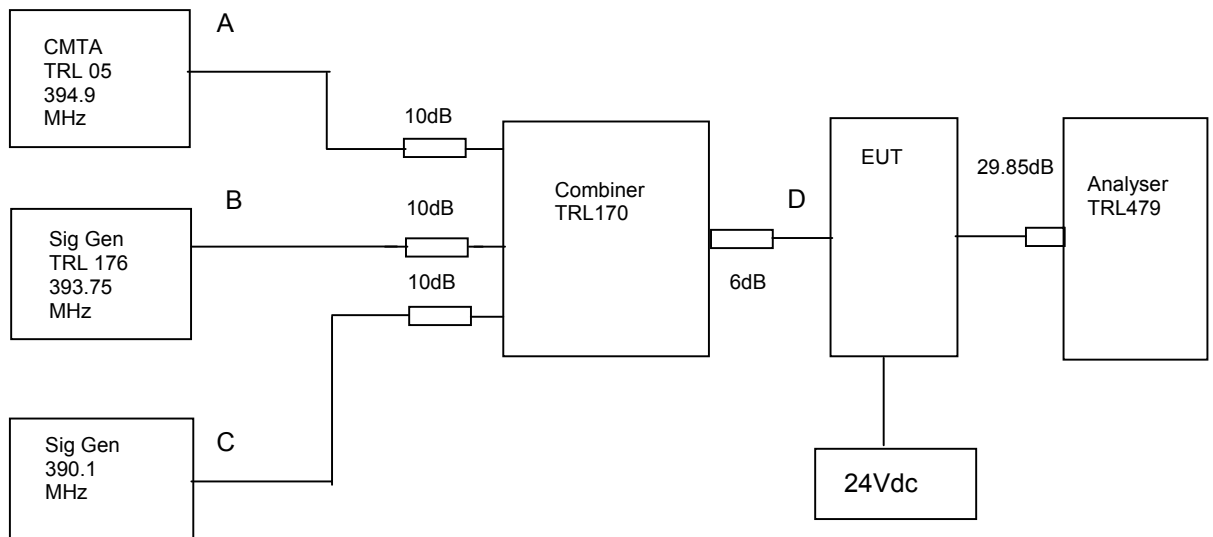
1. The level of the signal generator takes into consideration the loss from the cable.
2. The signal generator output was increased by 20dBs and the level of the output signal remeasured

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	X
ATTENUATOR	BIRD	8304-300-N	N/A	103	X
ATTENUATOR	BIRD	8304-300-N	N/A	112	X
CABLE	ROSENBERGER	MICRO COAX	N/A	279	X
SIGNAL GENERATOR	MARCON	2042	119388/080	179	X

AMPLIFIER INTERMODULATION SPURIOUS EMISSIONS – CONDUCTED – PART 2.1053– DOWNLINK

Ambient temperature = 21°C
 Relative humidity = 37%
 Supply voltage = +24 Vdc

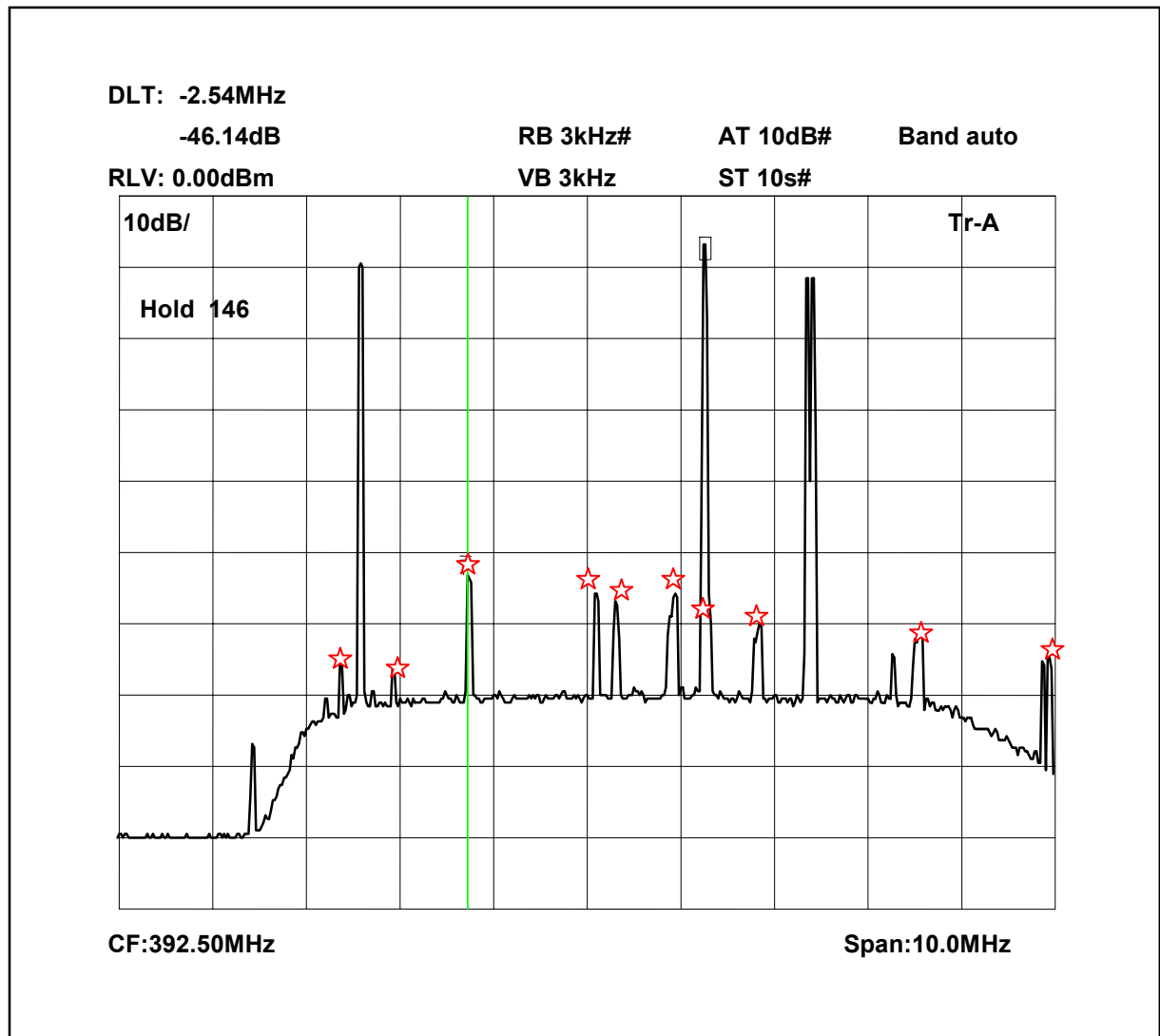
Radio Laboratory



The Intermodulation and spurious products were measured with the amplifier operating at maximum gain. A three tone test was conducted using the equipment as above. The input power level was adjusted so the level at point D was the maximum input of –53.4dBm. The cable and attenuators loss between the EUT and the spectrum analyser was 29.85 dB.

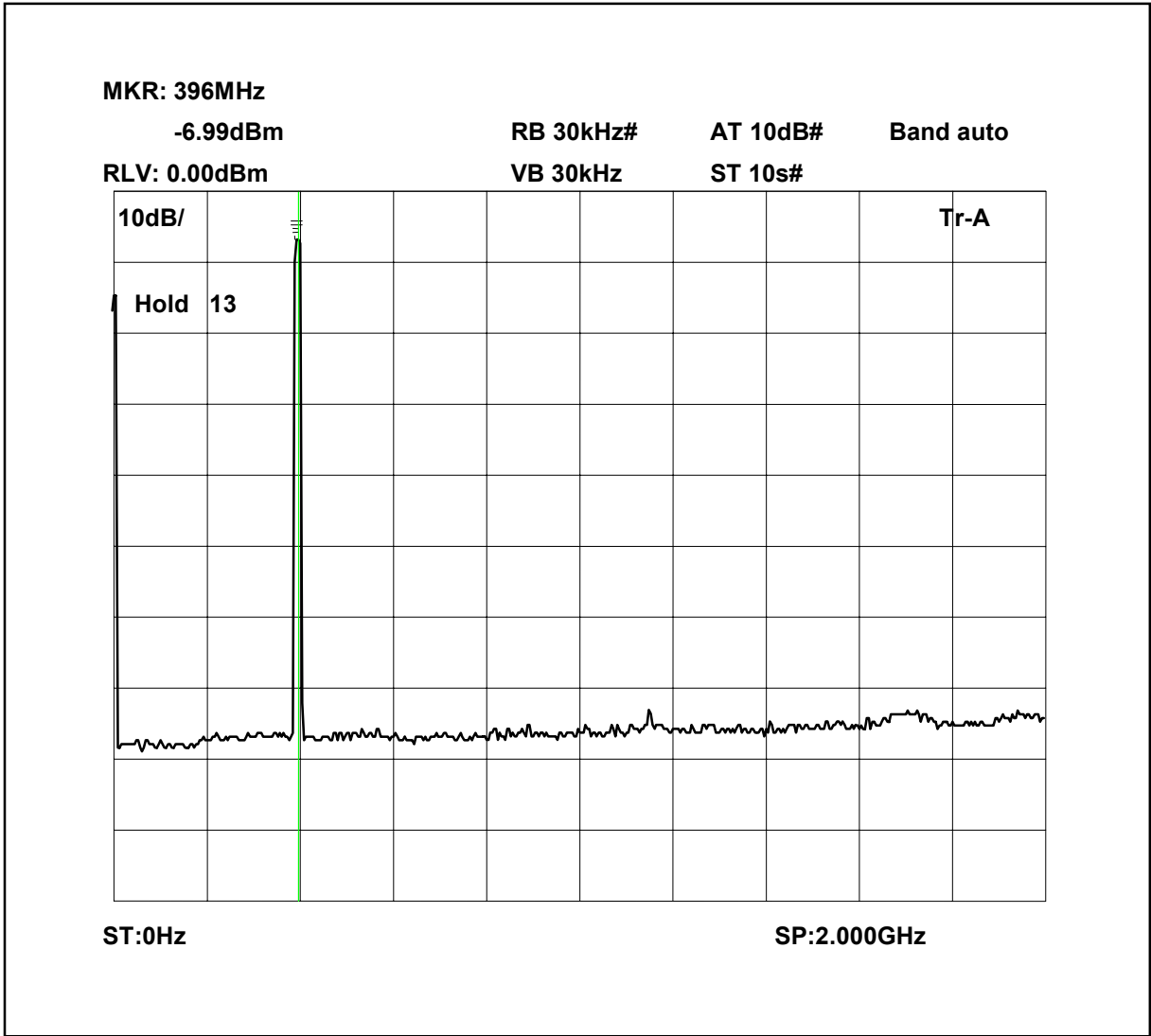
Sweep data is shown on the next page:

Intermodulation Inband



The above plot shows that all products (designated by ☆) are at least 46dB below the fundamentals level detailed on previous page .

Intermodulation Wideband



The above plot shows that there are no products outside the transmit band.

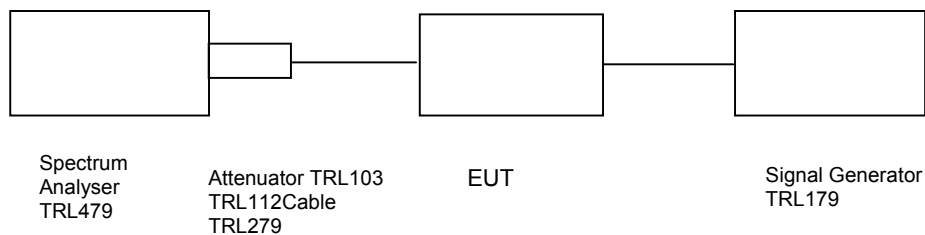
Test equipment used for intermodulation test

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	X
SIGNAL GENERATOR	ROHDE & SCHWARZ	SMR 20	834671/003	478	X
CMTA	ROHDE & SCHWARZ	CMTA52	894715/033	05	X
SIGNAL GENERATOR	MARCON	2042	119388/080	179	X
COMBINER	ELCOM	RC-4-50	N/A	170	x

TRANSMITTER TESTS

AMPLIFIER MODULATED CHANNEL TEST – CONDUCTED – Part 2.1049– DOWNLINK

Ambient temperature	=	24°C	Radio Laboratory
Relative humidity	=	48%	
Supply voltage	=	+24 Vdc	
Channel number	=	See test results	



This test was performed to show that the amplifier does not alter the input signal in any way. The input signal was set to the maximum input level (-55.4Bm) and modulated with a 2500Hz tone. The plots show the signal measured at the signal generator and the signal measured at the output of the EUT.

Note: The cables and attenuators had the following losses.

1. Cable TRL279 and attenuators TRL220 = 29.85dB
2. Cable between signal generator and EUT = 0.4dB

MR: 390.10008MHz

-55.03dBm RB 1kHz# AT 10dB# Band auto

RLV:-30.00dBm VB 1kHz# ST 500ms#

10dB/ Hold 13 Tr-A

CF:390.10000MHz Span:40.0kHz

The figure is a spectrum plot on a grid. The horizontal axis represents frequency, with a center frequency (CF) of 390.10000 MHz and a span of 40.0 kHz. The vertical axis represents power in dBm, with a reference level (RLV) of -30.00 dBm and a scale of 10 dB per division. The plot shows a signal with a central peak and side lobes, with a noise floor around -55.03 dBm. The signal is labeled 'Tr-A' and 'Hold 13'.

MR: 390.10000MHz
-0.97dBm
RB 1kHz#
AT 30dB#
Band auto
RLV: 20.00dBm
VB 1kHz#
ST 500ms#

10dB/

Hold 74

Tr-A

CF:390.10000MHz

Span:40.0kHz

RF335 iss02

MR: 392.50008MHz

-54.68dBm RB 1kHz# AT 10dB# Band auto

RLV:-30.00dBm VB 1kHz# ST 500ms#

10dB/ Hold 80 Tr-A

CF:392.50000MHz Span:40.0kHz

The figure is a spectrum plot on a grid. The horizontal axis represents frequency, with a center frequency (CF) of 392.50000 MHz and a span of 40.0 kHz. The vertical axis represents power, with a resolution bandwidth (RB) of 1 kHz and a video bandwidth (VB) of 1 kHz. The plot shows a signal with a central peak and side lobes, characteristic of a modulated signal. The peak power is -54.68 dBm. The plot is labeled with various parameters including frequency, power, and span. The plot is labeled with '10dB/' and 'Hold 80' in the top left corner, and 'Tr-A' in the top right corner. The plot is labeled with 'CF:392.50000MHz' and 'Span:40.0kHz' at the bottom.

MR: 392.5000MHz

0.54dBm RB 1kHz# AT 30dB# Band auto

RLV: 20.00dBm VB 1kHz# ST 500ms#

10dB/ Hold 112 Tr-A

CF:392.5000MHz Span:40.0kHz

The figure is a spectrum plot with a grid. The horizontal axis represents frequency, with a center frequency (CF) of 392.5000 MHz and a span of 40.0 kHz. The vertical axis represents power, with a resolution of 10 dB. The plot shows a signal with a peak around 392.5 MHz. The signal has a complex shape with several peaks and valleys. The peak power is 0.54 dBm. The plot also shows various measurement parameters: RB 1kHz#, AT 30dB#, Band auto, RLV: 20.00dBm, VB 1kHz#, ST 500ms#. The plot is labeled 'Hold 112' and 'Tr-A'.

RF335 iss02

MR: 394.90008MHz

-54.59dBm RB 1kHz# AT 10dB# Band auto

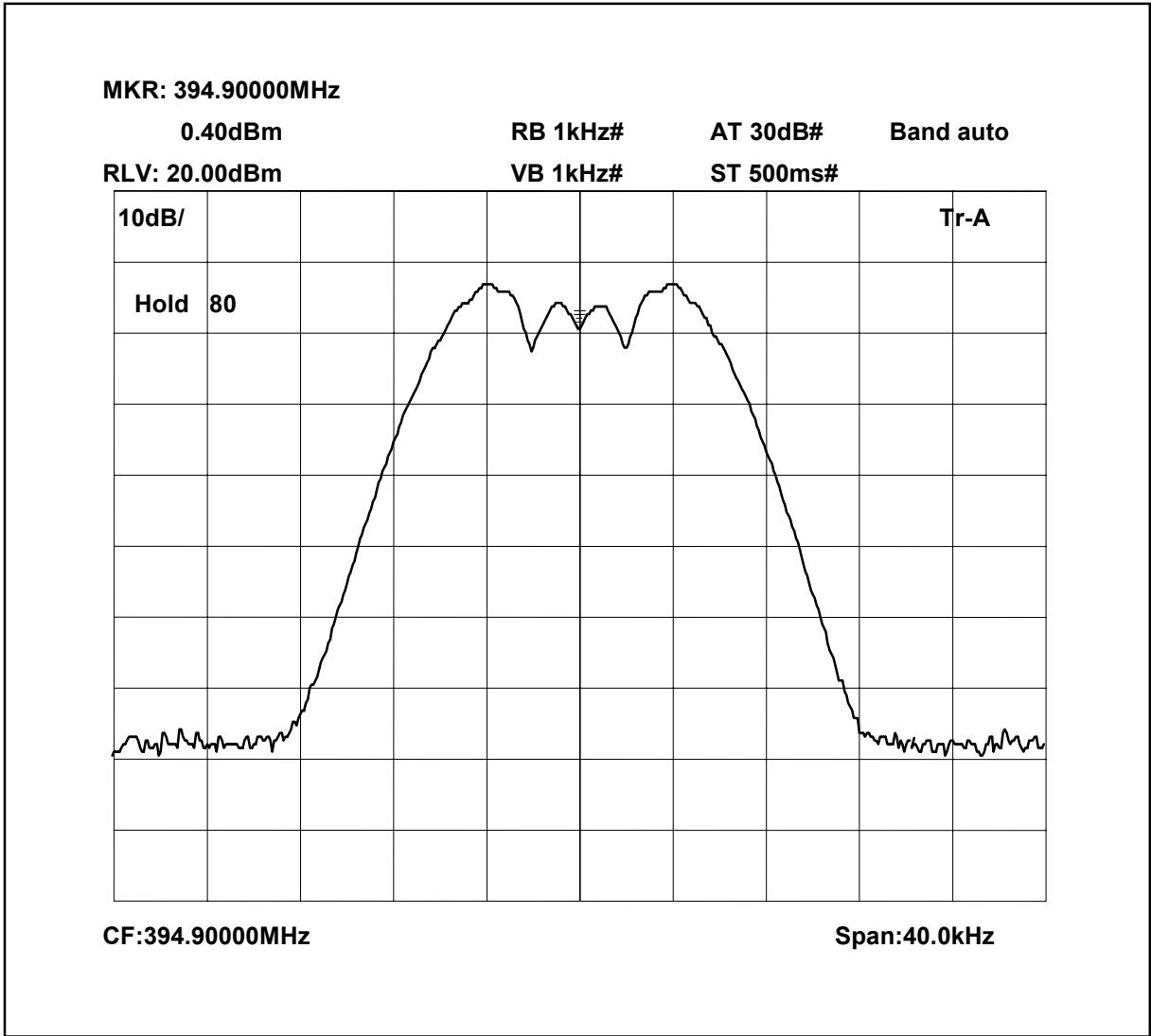
RLV:-30.00dBm VB 1kHz# ST 500ms#

10dB/ Hold 57 Tr-A

CF:394.90000MHz Span:40.0kHz

The figure is a spectrum plot with a grid. The horizontal axis represents frequency, with a center frequency (CF) of 394.90000 MHz and a span of 40.0 kHz. The vertical axis represents power, with a resolution bandwidth (RB) of 1 kHz and a video bandwidth (VB) of 1 kHz. The plot shows a signal with a peak around 394.90008 MHz, reaching a power level of -54.59 dBm. The signal has a complex shape with multiple peaks and valleys. The plot is labeled 'Tr-A' and 'Hold 57'. The settings are: MR: 394.90008MHz, RB 1kHz#, AT 10dB#, Band auto, RLV:-30.00dBm, VB 1kHz#, ST 500ms#.

394.9MHz Signal Generator deviation set to 5kHz



The above plots depicting the output waveshape show no measurable distortion visible. When compared to the input signal.

The test equipment used for the Transmitter modulated channel tests is shown overleaf:

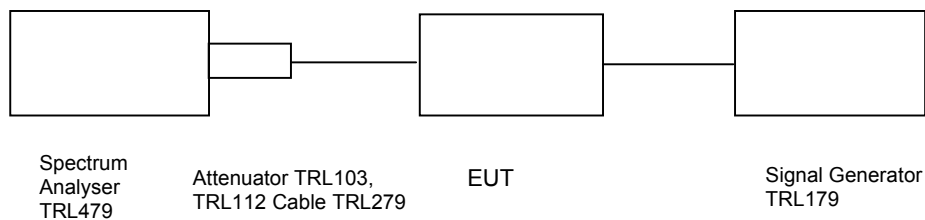
TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	X
ATTENUATOR	BIRD	8304-200	N/A	103	X
ATTENUATOR	BIRD	8304-100	N/A	112	X
CABLE	ROSENBERGER	MICRO COAX	N/A	279	X
SIGNAL GENERATOR	MARCON	2042	119388/080	179	X

TRANSMITTER TESTS

AMPLIFIER SPURIOUS EMISSIONS – CONDUCTED – Part 2.1057 dBm– DOWNLINK

Ambient temperature = 24°C
 Relative humidity = 48%
 Supply voltage = +24 Vdc

Radio Laboratory
 Test Signal = F3E



The test was set up as per the diagram. The level at the input was adjusted to compensate for the loss of the interconnecting cable. The unit was tested operating at maximum power and on three test frequencies.

The Spurious limit was calculated as follows:

On any frequency removed from the assigned frequency by more that 250% of the authorised bandwidth

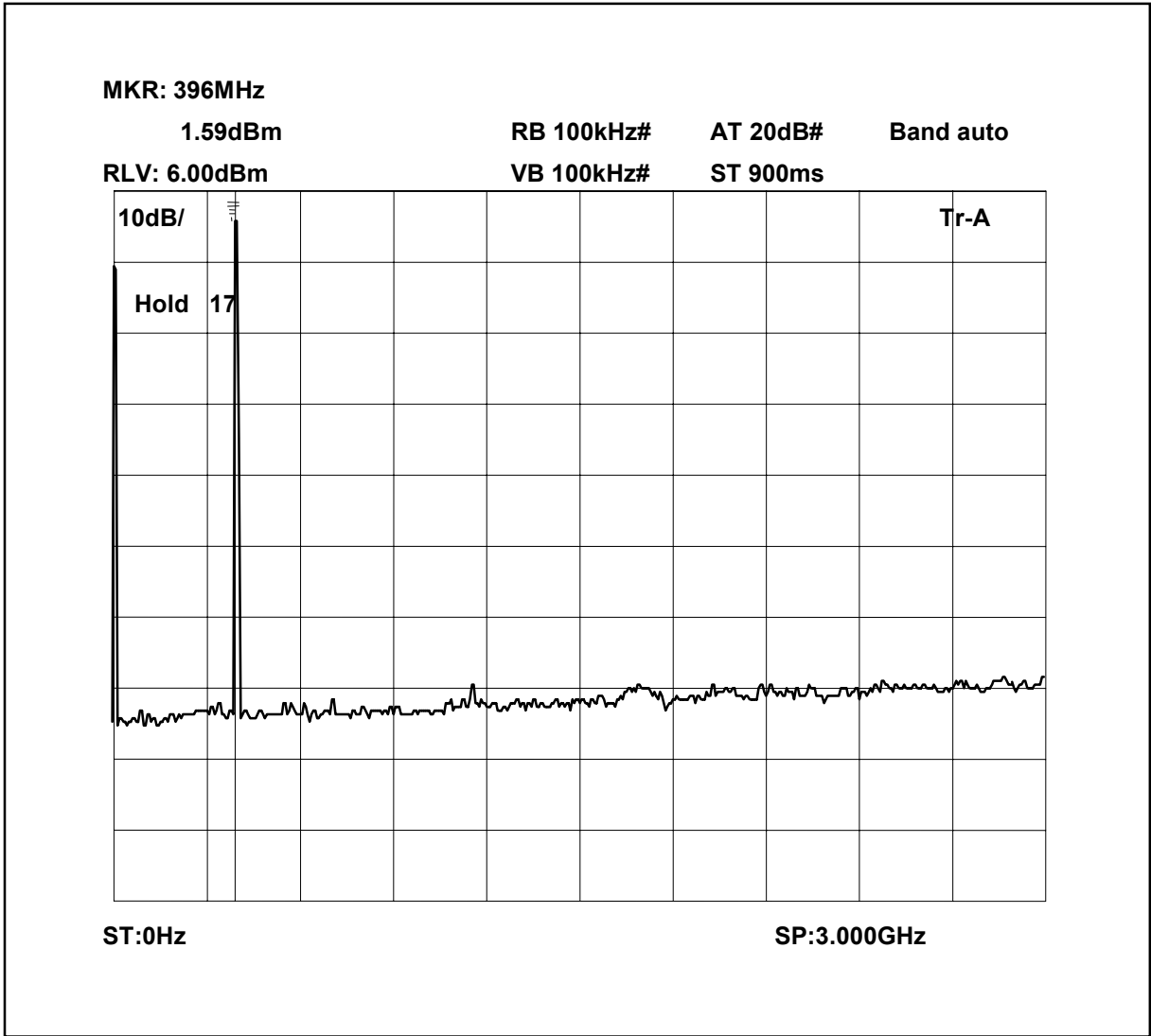
At least $43 + 10 \log \text{PdB}$

$$(10 \log P_{\text{watts}}) - (43 + 10 \log (P_{\text{watts}} * 1000)) = \text{LIMIT} = -13 \text{ dBm}$$

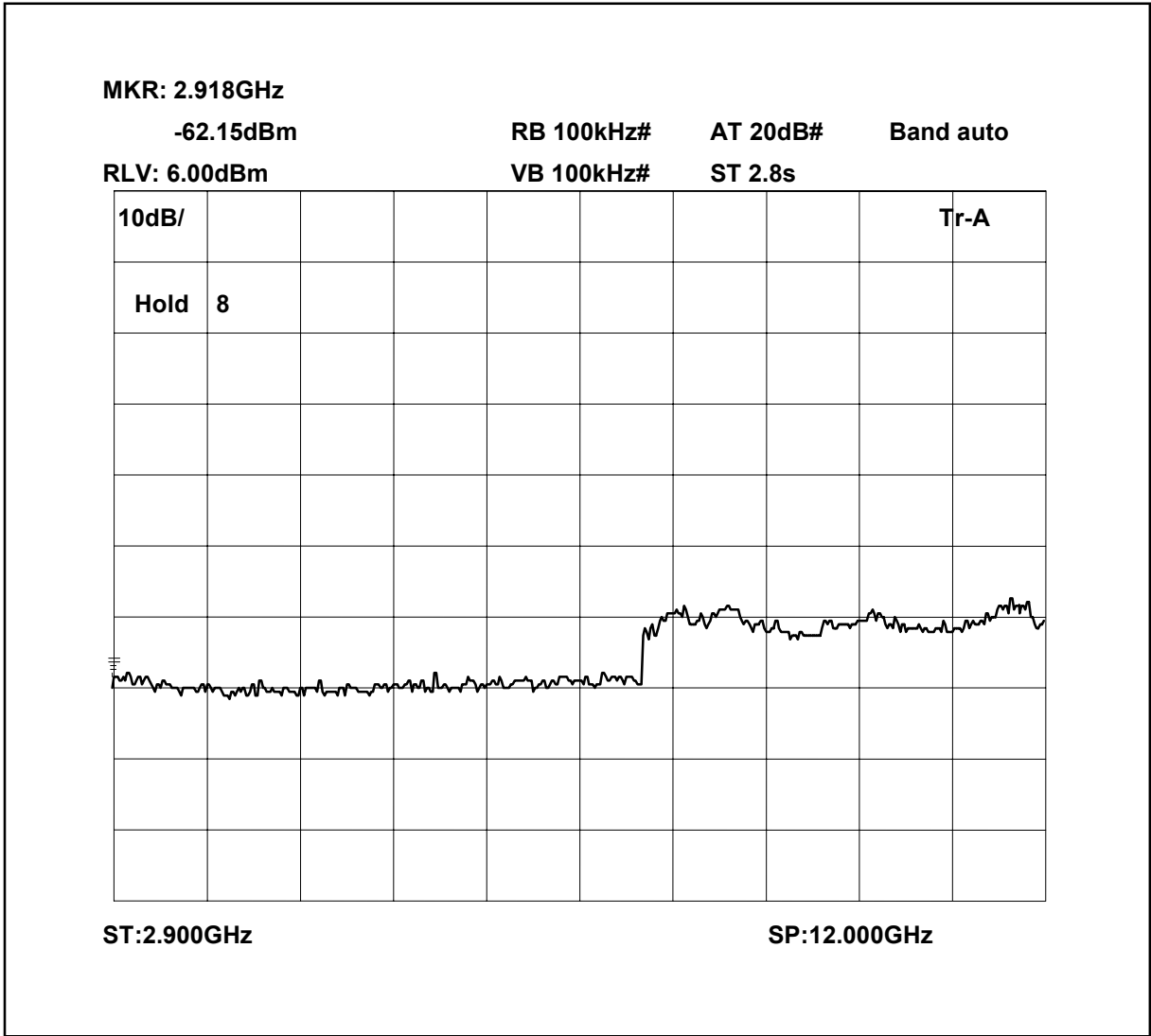
The test equipment used for the Transmitter Conducted Emissions:

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	X
ATTENUATOR	BIRD	8304-200	N/A	103	X
ATTENUATOR	BIRD	8304-100	N/A	112	X
CABLE	ROSENBERGER	MICRO COAX	N/A	279	X
SIGNAL GENERATOR	MARCON	2042	119388/080	179	X

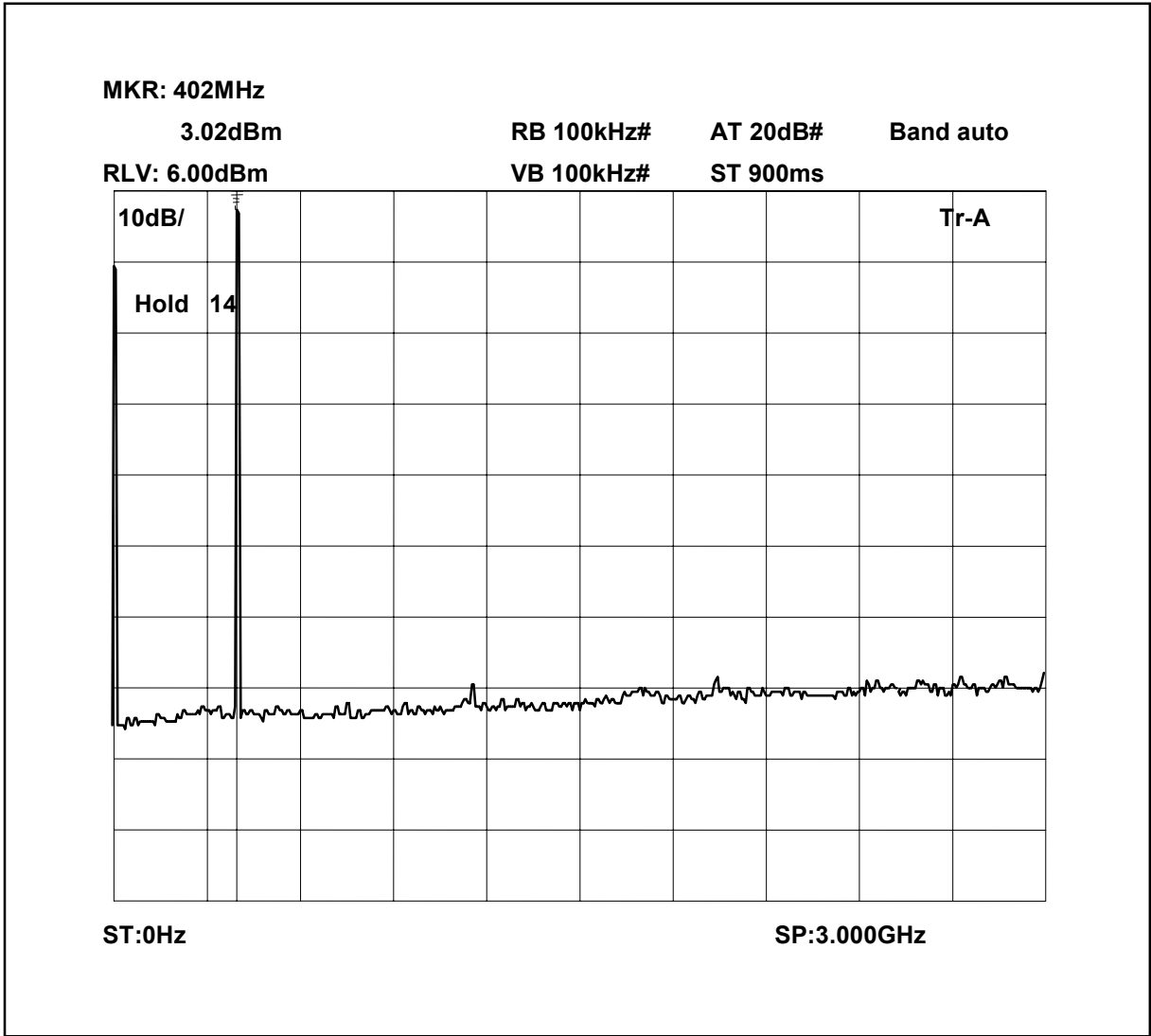
Conducted emissions 390.1MHz 0-3GHz



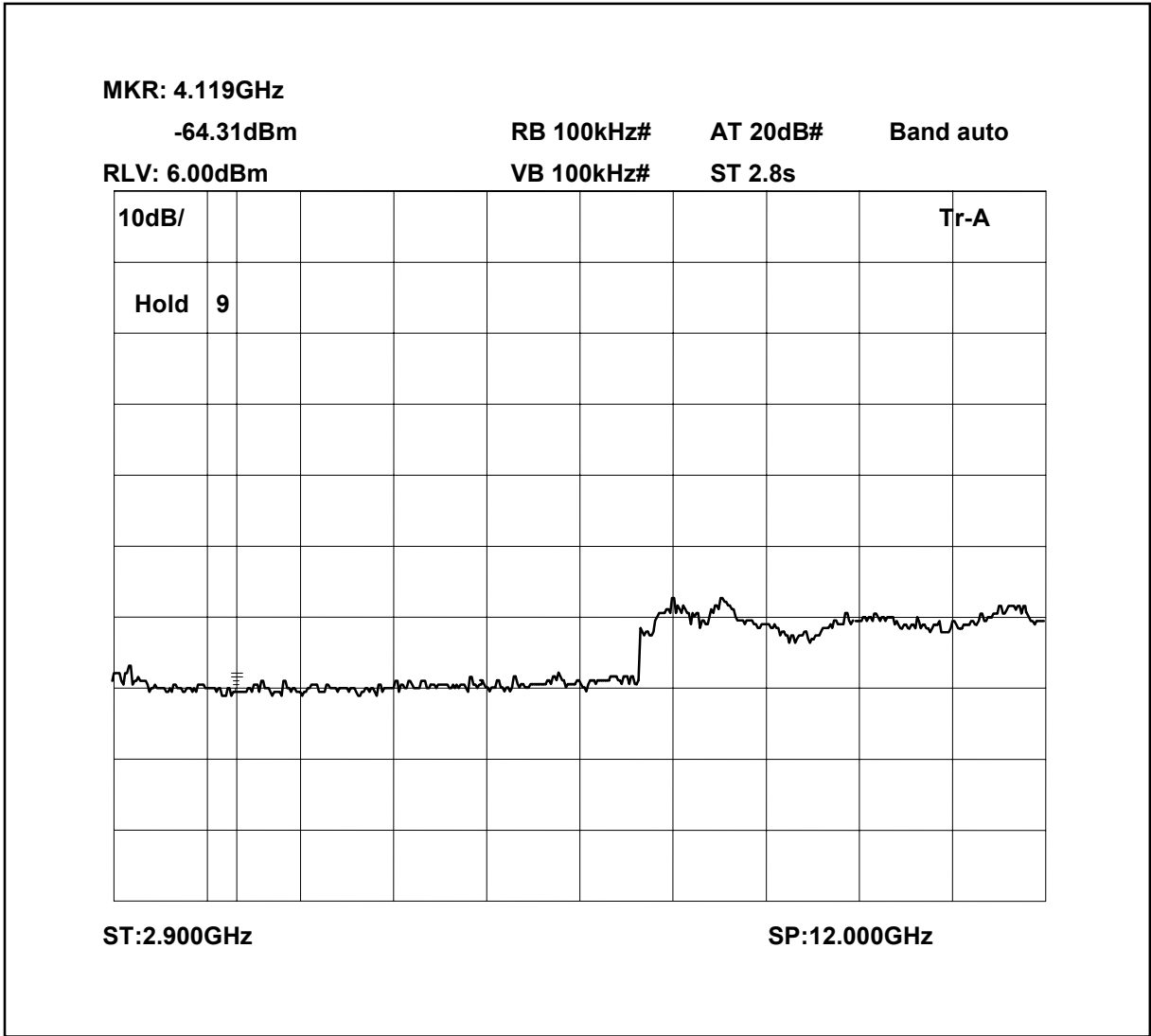
Conducted emissions 390.1 MHz 2.9-10GHz



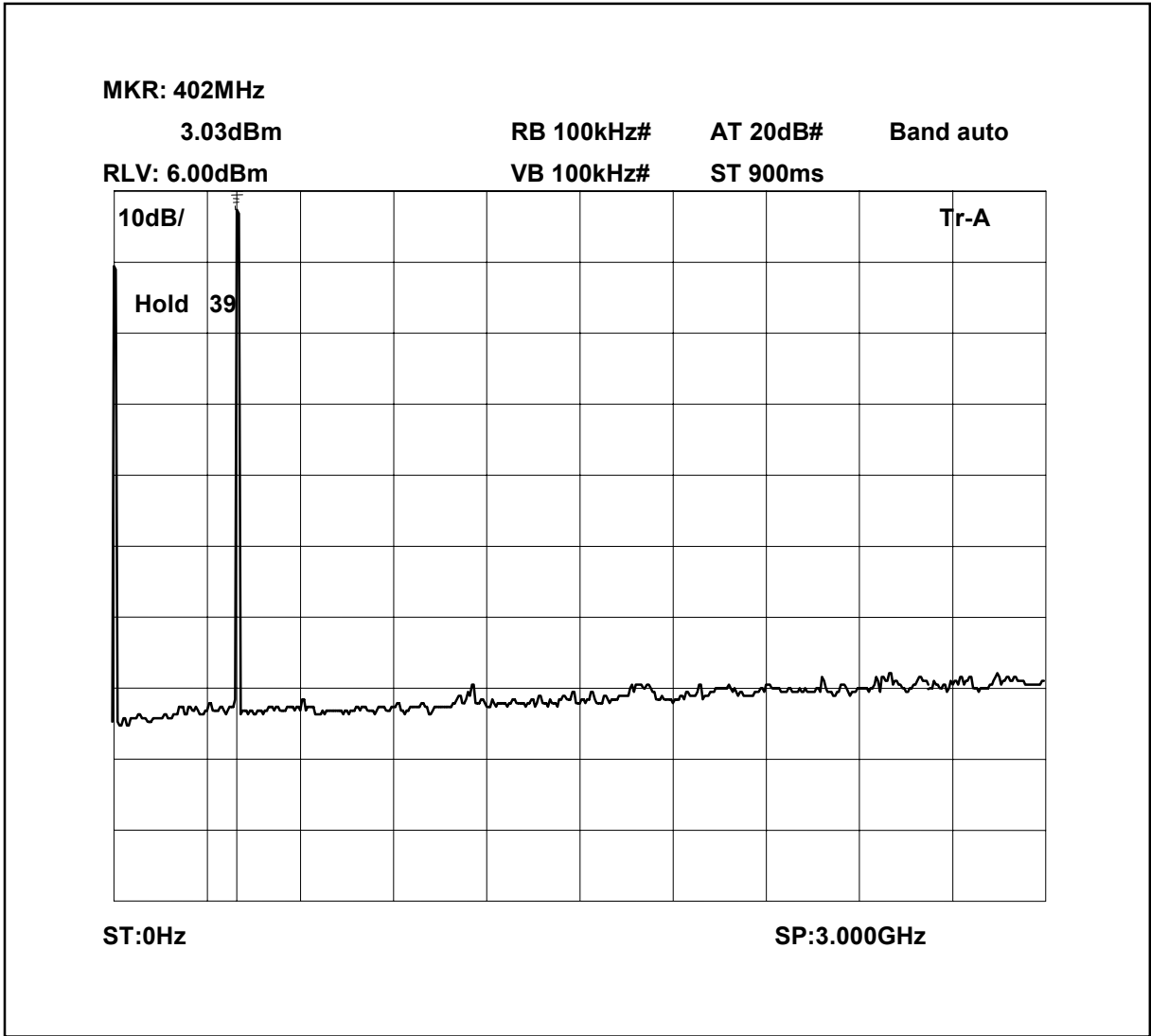
Conducted emissions 392.5 MHz 0-3GHz



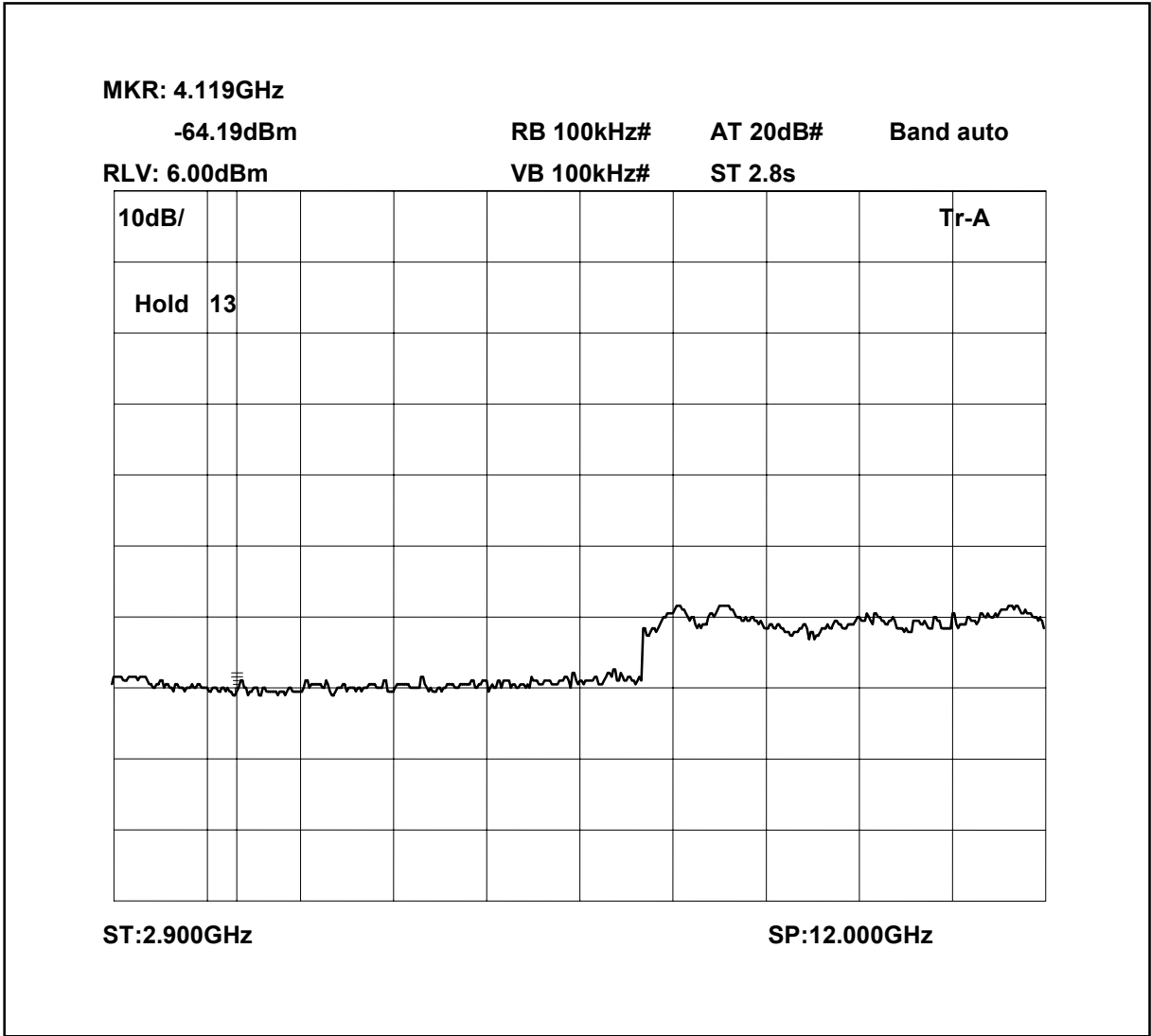
Conducted emissions 392.5MHz 2.9-10GHz



Conducted emissions 394.9MHz 0-3GHz



Conducted emissions 394.9MHz 2.9-10GHz

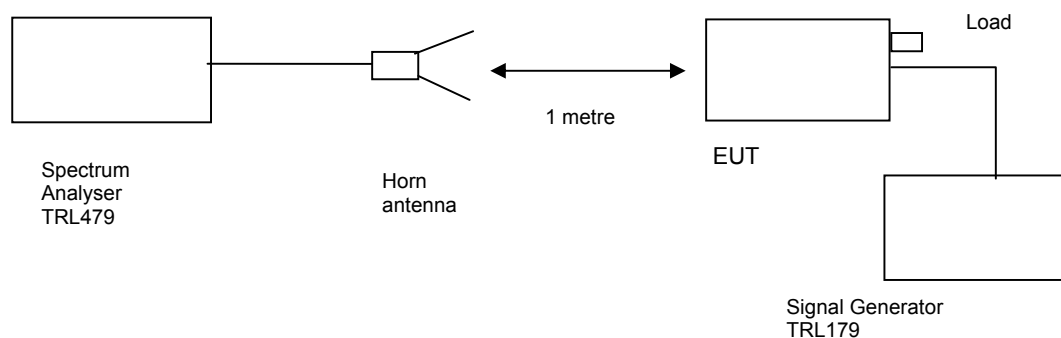


TRANSMITTER TESTS

AMPLIFIER SPURIOUS EMISSIONS – RADIATED – Part 2.1053– DOWNLINK

Ambient temperature = 10°C
Relative humidity = 43%
Conditions = OATS
Supply voltage = +24 Vdc
Supply Frequency = N/A

Test Signal = F3E



The test was set up as per the diagram. The level at the input was adjusted to compensate for the loss of the interconnecting cable. The unit was tested operating maximum power on three test frequencies with a 50 ohm load on the output. The unit was also tested with the signal generator replaced by another 50ohm load.

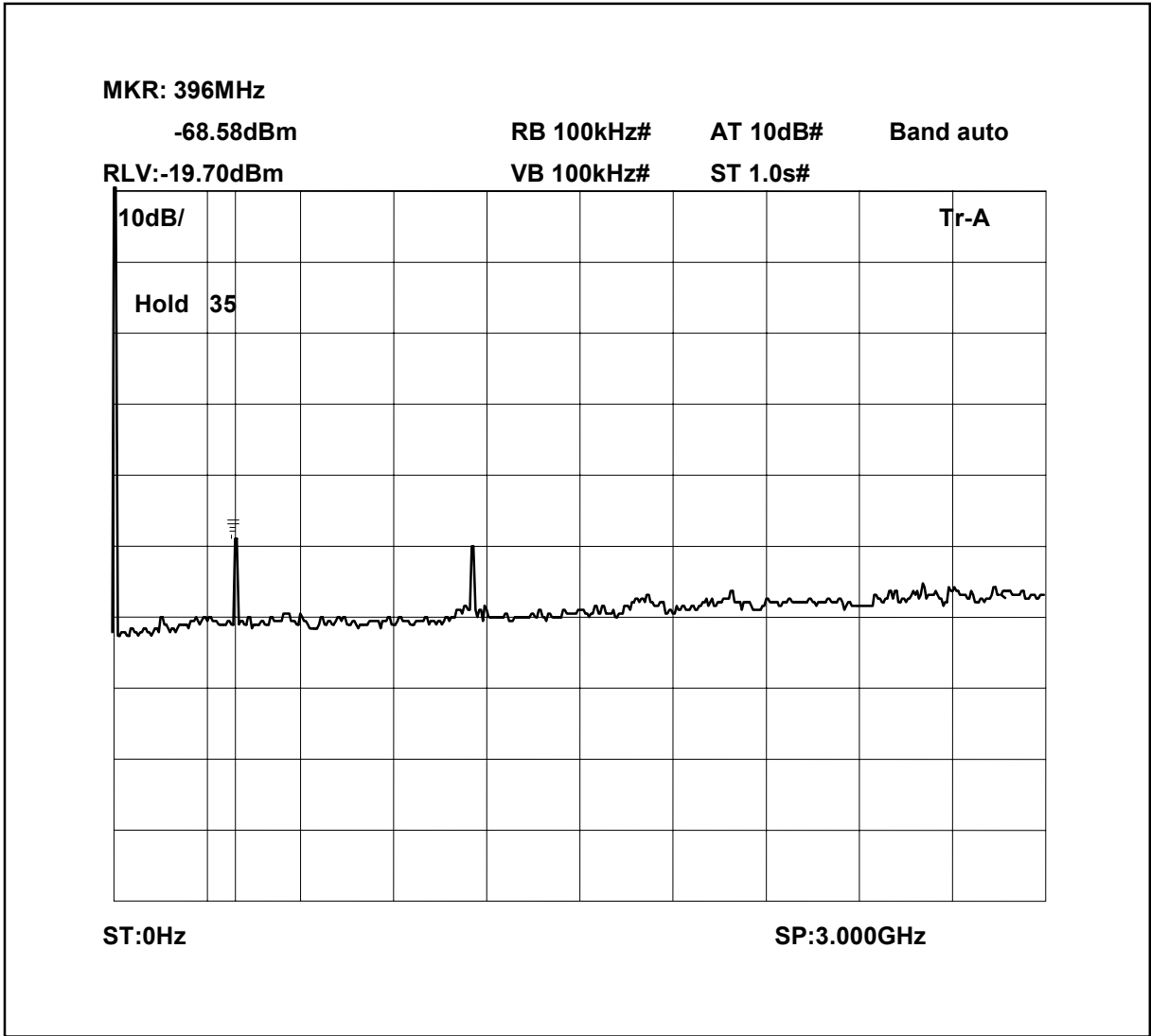
The Spurious limit was calculated as follows:

On any frequency removed from the assigned frequency by more that 250% of the authorised bandwidth

At least $43 + 10 \log P_{dB}$

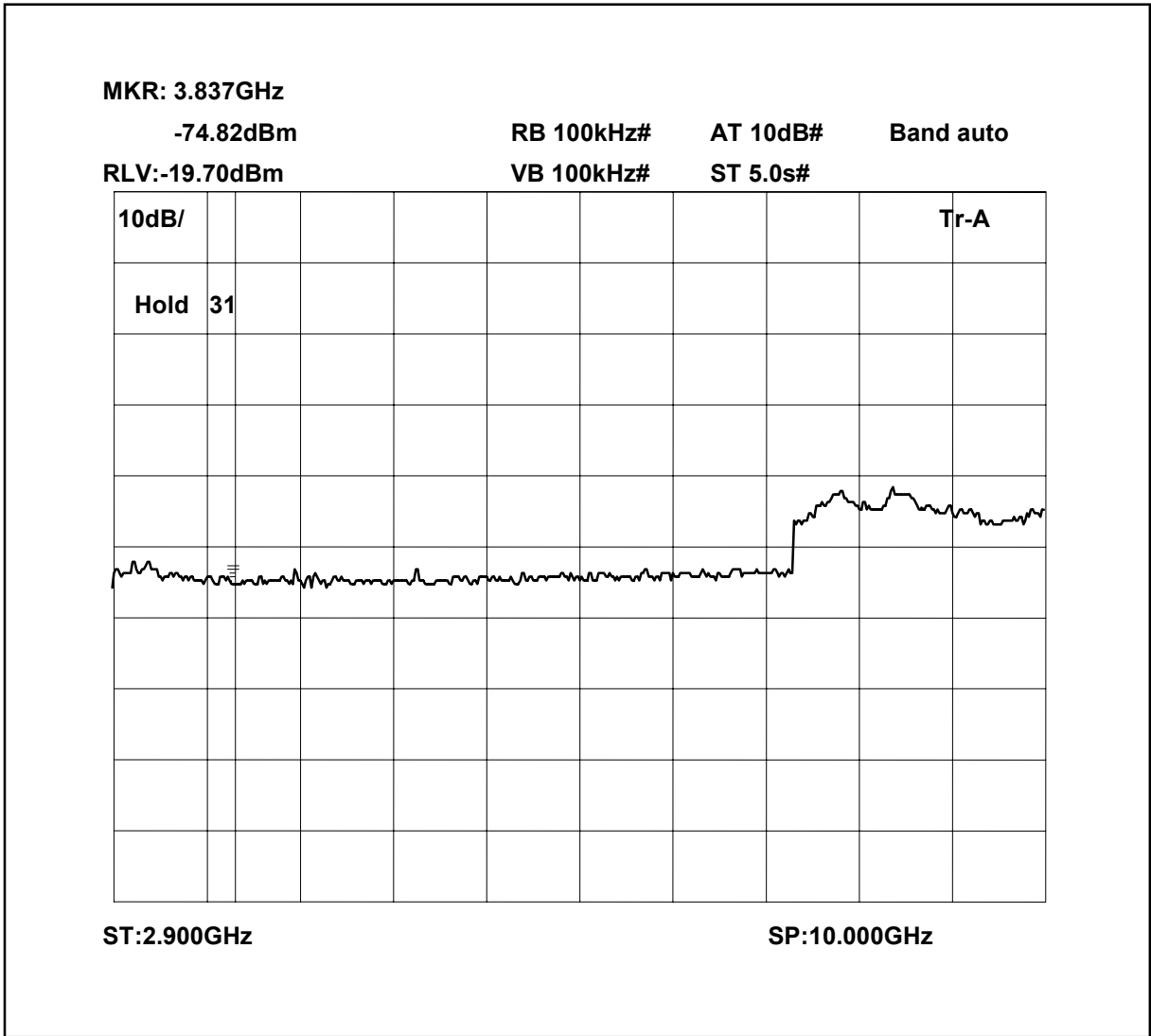
$$(10\log P_{\text{watts}}) - (43 + 10\log (P_{\text{watts}} * 1000)) = \text{LIMIT} = -13 \text{ dBm}$$

Radiated emissions 390.1MHz 0-3GHz



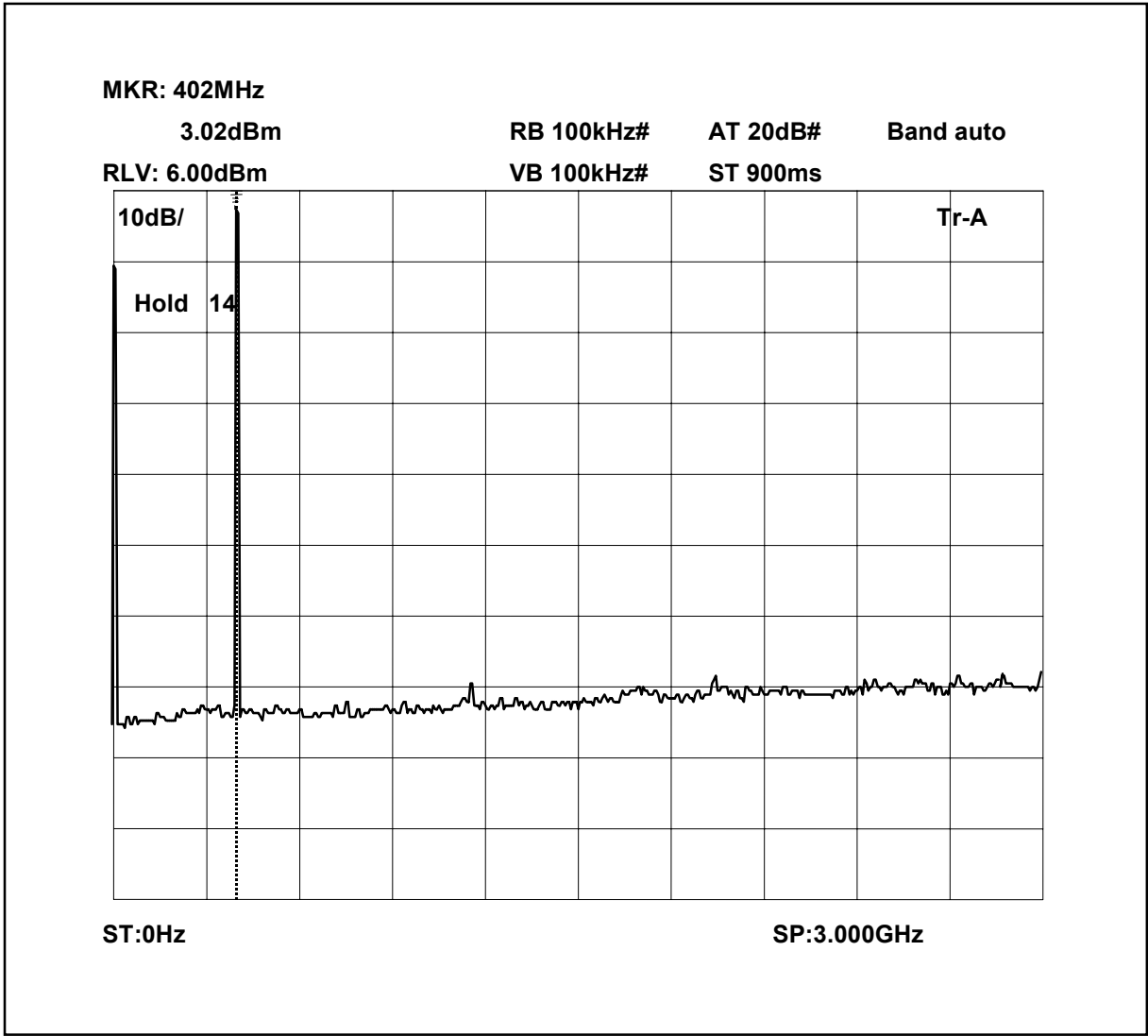
The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 390.1MHz 2.9-10GHz



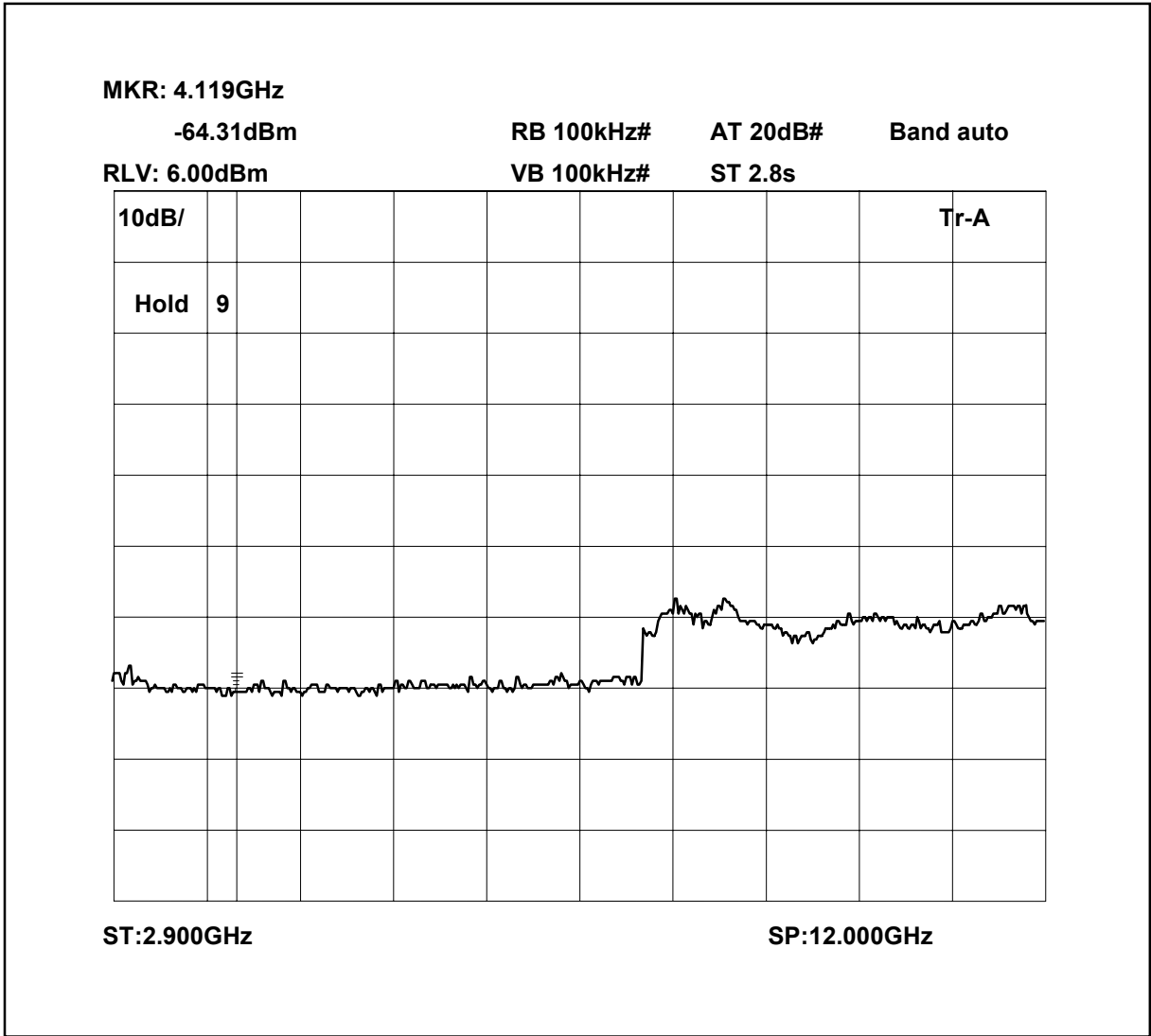
The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 392.5MHz 0-3GHz



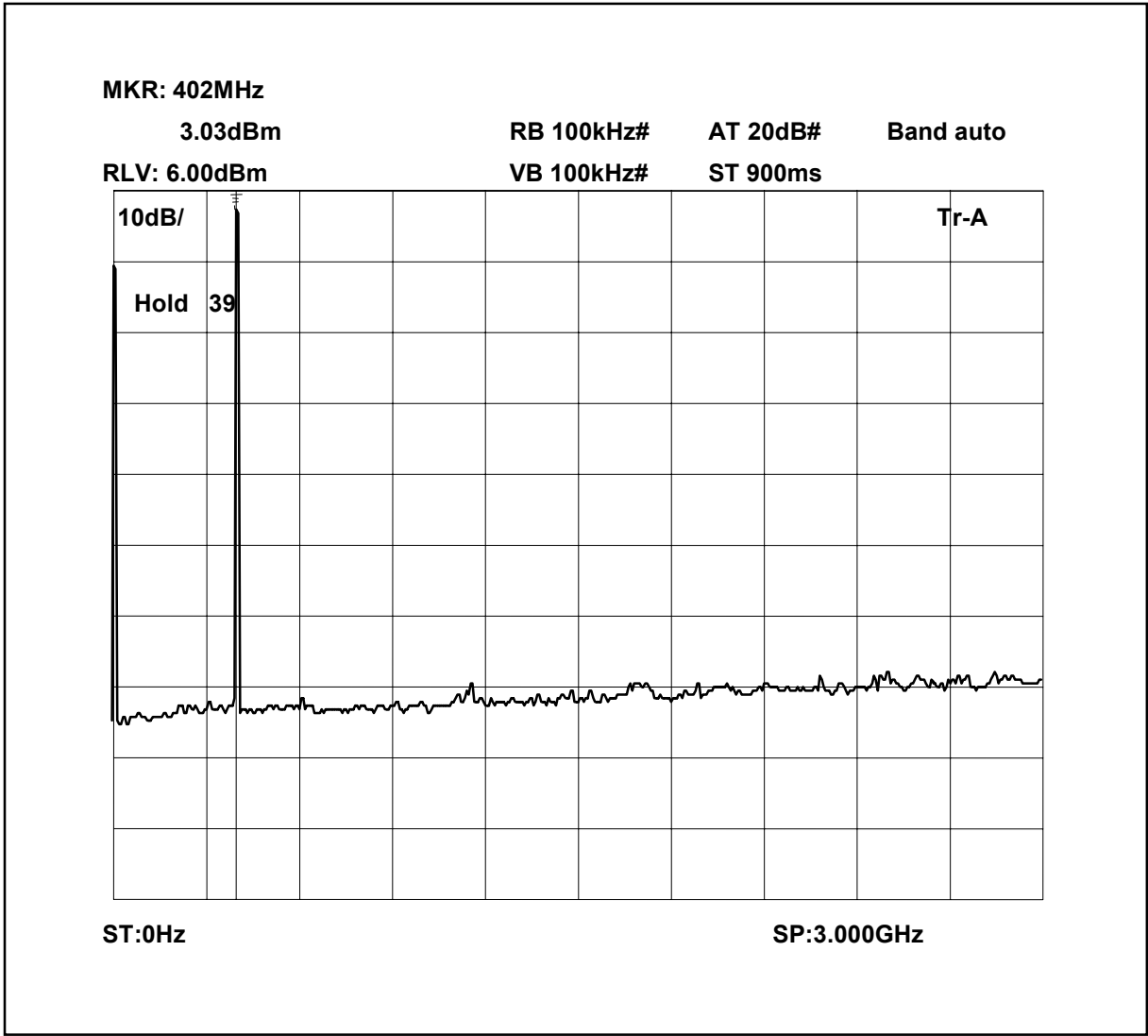
The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 392.5MHz 2.9-10GHz



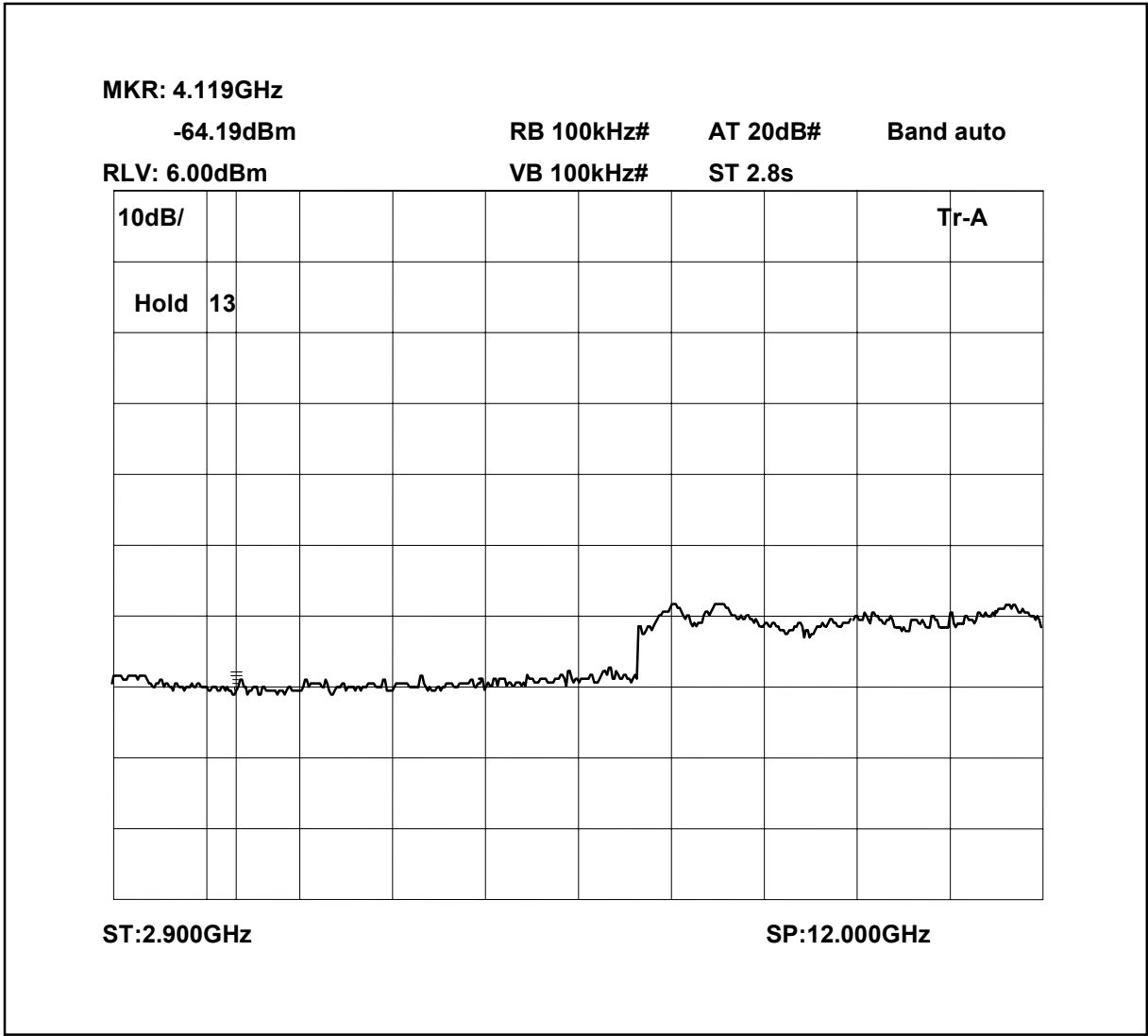
The above test results show that there were no emissions within 20dBs of the -13dBm limit.

Radiated emissions 394.9MHz 0-3GHz



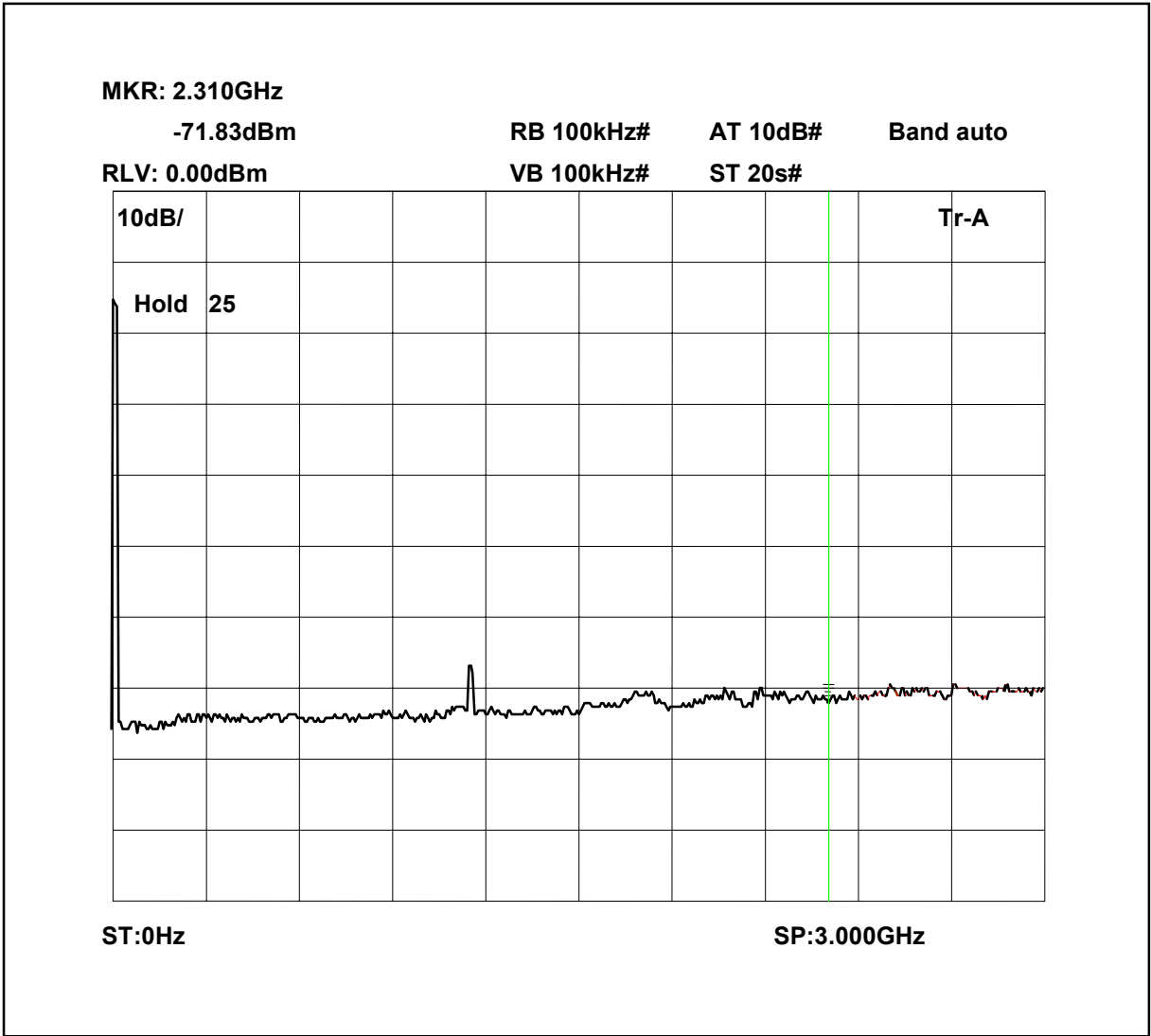
The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 394.9MHz 2.9-12GHz



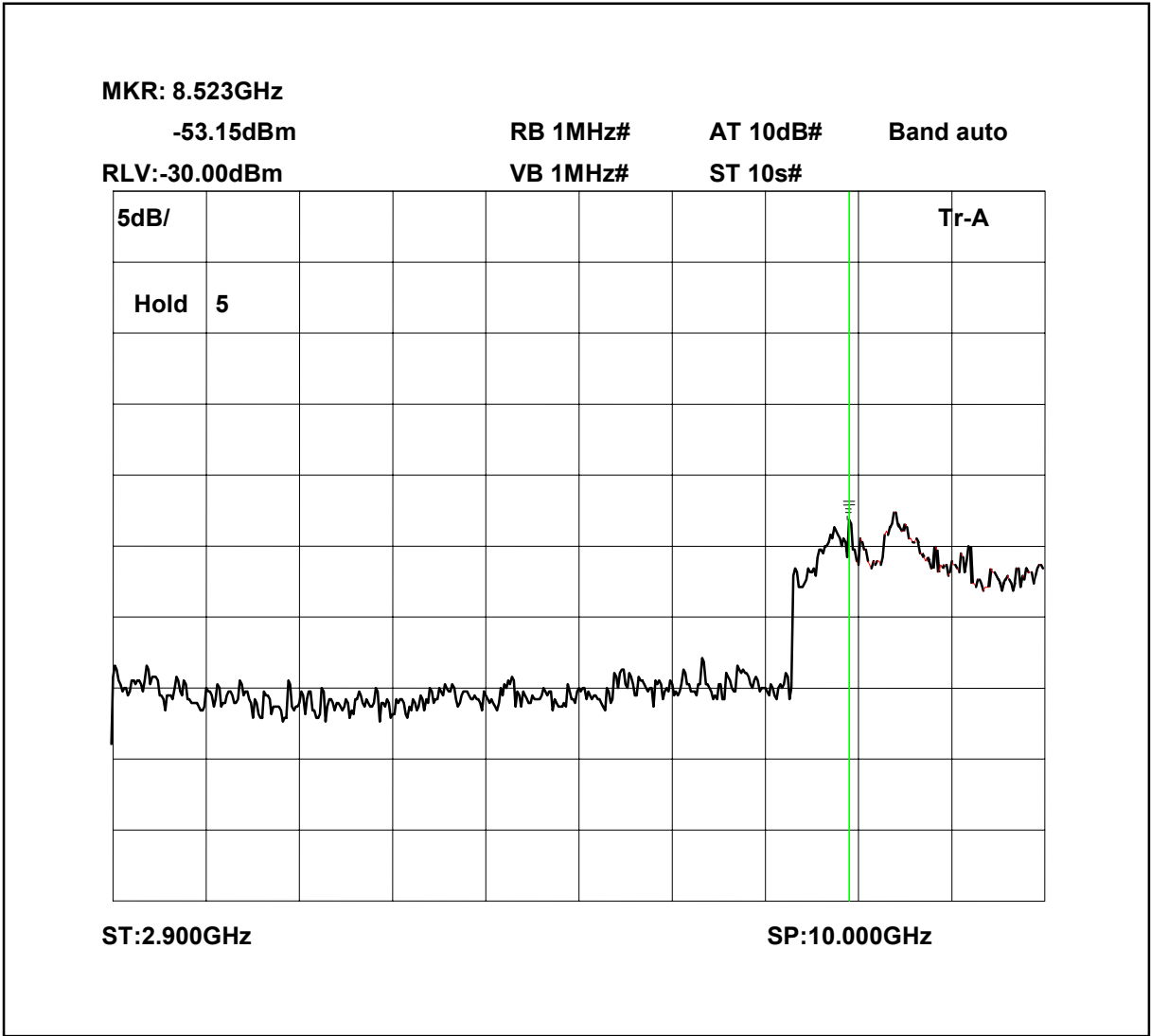
The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions no input signal 0-3GHz



The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions no input signal 2.9-10GHz



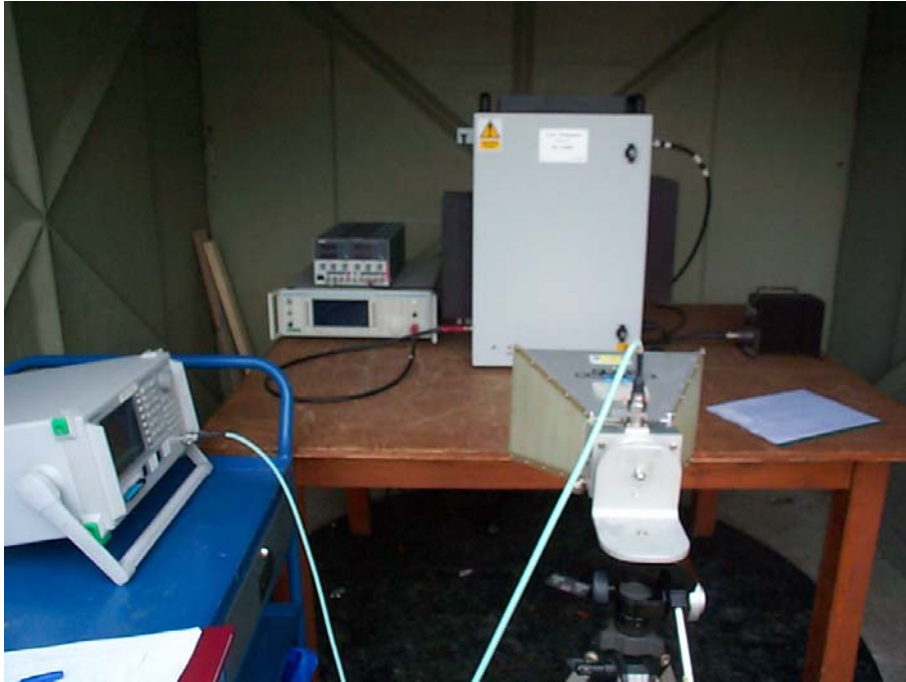
The above test results show that there were no emissions within 20dBs of the –13dBm limit.

The test equipment used for the Transmitter Spurious Emissions:

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	X
HORN	EMCO	3115	9010-3581	139	X
ATTENUATOR	BIRD	8308-200	N/A	103	X
ATTENUATOR	BIRD	8308-100	N/A	112	X
CABLE	ROSENBERGER	MICRO COAX	N/A	279	X
SIGNAL GENERATOR	MARCON	2042	119388/080	179	X

ANNEX A
PHOTOGRAPHS





ANNEX B

APPLICANT'S SUBMISSION OF DOCUMENTATION LIST

APPLICANT'S SUBMISSION OF DOCUMENTATION LIST

a.	TCB	-	APPLICATION	[X]
		-	FEE	[X]
b.	AGENT'S LETTER OF AUTHORISATION	-		[X]
c.	MODEL(s) vs IDENTITY	-		[]
d.	ALTERNATIVE TRADE NAME DECLARATION(s)	-		[]
e.	LABELLING	-	PHOTOGRAPHS	[]
		-	DECLARATION	[]
		-	DRAWINGS	[]
f.	TECHNICAL DESCRIPTION	-		[X]
g.	BLOCK DIAGRAMS	-	Tx	[X]
		-	Rx	[]
		-	PSU	[]
		-	AUX	[]
h.	CIRCUIT DIAGRAMS	-	Tx	[]
		-	Rx	[]
		-	PSU	[]
		-	AUX	[]
i.	COMPONENT LOCATION	-	Tx	[]
		-	Rx	[]
		-	PSU	[]
		-	AUX	[]
j.	PCB TRACK LAYOUT	-	Tx	[]
		-	Rx	[]
		-	PSU	[]
		-	AUX	[]
k.	BILL OF MATERIALS	-	Tx	[X]
		-	Rx	[]
		-	PSU	[]
		-	AUX	[]
l.	USER INSTALLATION / OPERATING INSTRUCTIONS	-		[X]

